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Towards a typology of participles

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ACADEMIC DISSERTATION

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Abstract

The dissertation is a typological study of participles based on the concept of participle specifically designed for cross-linguistic comparison. In a few words, participles are defined as non-finite verb forms that can be employed for adnominal modification, e.g. the form *written* in *the book* [*written by my supervisor*]. The study is based on the data from more than 100 genetically and geographically diverse languages possessing the relevant forms. The data for the research comes mainly from descriptive grammars, but first-hand materials from native speakers, including those collected in several field trips, are also of utmost importance.

The main theoretical aim of the dissertation is to describe the diversity of verb forms and clausal structures involved in participial relativization in the world's languages, as well as to examine the paradigms formed by participial forms. In different chapters of the dissertation, participles are examined with respect to several parameters, such as participial orientation, expression of temporal, aspectual and modal meanings, possibility of verbal and/or nominal agreement, encoding of arguments, and some others. Finally, all the parameters are considered together in the survey of participial systems.

The findings reported in the dissertation are representative of a significant diversity in the morphology of participles, their syntactic behaviour and the oppositions they form in the system of the language. However, despite their versatility and multifunctionality, participles clearly exhibit enough idiosyncratic properties to be recognized as a cross-linguistically relevant category and studied in their own right.

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List of abbreviations

Morphological glosses

I–V	gender classes
A	agent-like argument of canonical transitive verb
ACC	accusative
ACT	active
ACTUAL	actual
AD	location typically associated with the entity
ADSX	ad-forming suffix
ADJR	adjectivizer
ADV	adverbializer
AFF	affirmative
AFR	aforementioned
AGR	agreement
ALL	allative
ALN	alienable possessive pronoun
AN	animate
ANOM	action nominal
ANT	anterior
AOR	aorist
ART	article
ASP	aspect
ASSINV	assertor's involvement
ASSOC	associative
ATTR	attributive
AUG	augmentative
AUGM	augment vowel on nouns
AUX	auxiliary
CHAR	characteristic
CL	classifier
CL1, CL2, etc.	noun classes
CLT	clitic
CM	compact
CNG	connegative
CNT	location with contact
COM	comitative
COMPL	completive, completion
CON	concomitant
CONC	concord suffix

CONN	connector
CONS	consequential case
CONSTR	construct state
CONT	continuous
COORD	coordinator
COP	copula
CVB	converb
D	gender agreement marker, gender class /d/
DAT	dative
DEB	debitive
DEC	declarative
DEF	definite
DEFFUT	definite future
DEM	demonstrative
DEP	dependent marker
DET	determiner
DETR	detransitive; detransitivizer
DIM	diminutive
DISC	discontinuity marker
DIST	distal demonstrative
DO	direct object
DS	different-subject marker
DU	dual
DX	deictic prefix to verb
DYN	dynamic
ELA	elative
EMP	emphatic
END	ending
EP	epenthetic
ERG	ergative
EVD	evidential; PST.EVD – evidential past
EVT	eventual mood
EX	exclusive person
EXIST	existential particle
EXP	experiential
EXT	extension
F	feminine gender
FIN	finite
FOC	focus
FUT	future tense
GA	genitive-accusative
GEN	genitive
GEN_1	first genitive
GEN_2	second genitive
GER	gerundi(va)l

GNO	gnomic time reference
H	high tone
HA	suffix *-ha-* in Muna, cf. (van den Berg 2013: 100–101)
HAB	habitual
HAVE	verb-forming prefix meaning ‘have N’ (Nias)
HERE	‘here’ (deictic element in Pitta Pitta)
HPL	human plural
HTR	half-transitive/antipassive
HZ	horizontal
ILL	illative
IMP	imperative
IN	location ‘inside’
INAN	inanimate
INC	inclusive
INCH	inchoative
IND	indicative
INESS	inessive
INF	infinitive
INFR	inferential
INS	instrumental
INT	intensifier
INTR	intransitive
INTRJ	interjection
INV	inverse
IO	indirect object
IPFV	imperfective
IRR	irrealis mood
ITER	iterative
ITG	intangible
J	gender agreement marker, gender class /j/ (Ingush)
L	low tone
LAT	lative
LIG	ligature
LK	linker
M	masculine gender
MID	middle voice
MLOC	modal locative
MOD	modal
MPROP	modal proprietive
MUT	mutated nominal
N	neuter gender
NEC	necessitative
NEUT	neutral tense-aspect suffix
NEW	newly-learned knowledge (mirative) information value
NF	non-finite

NFUT	non-future
NHPL	non-human plural
NMZ	nominalization
NMZ.O	object nominalizer
NOM	nominative
NOMFUT	nominal future marker
NOMPST	nominal past marker
NONABS	non-absolutive gender suffix
NONF	non-feminine gender
NPL	non-personal plural class
NPST	non-past
NS	non-subject
NUC	nuclear case
O	patient-like argument of canonical transitive verb
OBJ	object
OBL	oblique case
ORD	ordinal number
ORIG	origin case
PA	paucal
PASS	passive
PER	periphrasis form
PERS	personal pronoun
PFV	perfective
PL	plural
PLR	plurality
PO	primary object
POSS	possessive
POSSN	possession
POST	postposition
POT	potential
$PPERF_1$	immediate (default) past-perfective aspect
PREP	prepositional case
PRET	preterite
PREV	preverb
PRF	perfect
PRIV	privative
PROG	progressive aspect
PRON	pronominal
PROP	proprietive
PROX	proximal
PRPS	progressive persistent
PRS	present tense
PRT	preterite
PST	past
PTCP	participle

PTV	partitive
PURP	purposive
Q	question word or particle
R	recipient-like argument of ditransitive verb
REAL	realis mood
REAS	reason
REFL	reflexive
REL	relative clause marker/relativizer
REM	remote past tense
REP	repetitive aspect
RES	resultative
RLT	relational
RPTD	reported
S	single argument of canonical intransitive verb
SG	singular
SGT	singulative
SIT	situation-change marker
SJV	subjunctive
SPEC	specifier
SPR	location ‘on’
SR	subordinator
SRC	source postposition
SRESS	superessive
SS	same-subject marker
STAT	stative
SUB	subordinated form
SUBJ	subject
SURPR	surprisive
T	theme-like argument of ditransitive verb
TEL	telic
TH	thematic consonant
THS	thematic suffix
TOP	topic marker
TOP.NON.A/S	topical non-subject
TR	transitive
TS	thematic suffix
UWPST	unwitnessed past
V	verb
VAL	valency-increasing marker
VLD	validator
VN	verbal noun
WPST	witnessed past

Other abbreviations and special characters

AH	Accessibility Hierarchy
NP	noun phrase
RC	relative clause
TAM	tense-aspect-modality
+	verbal/nominal complex (Nivkh)
||	long pause (Nias)

1. Introduction

1.1. Introducing participles

This dissertation is a typological study of participles, that is, morphosyntactically deranked verb forms that can be employed for adnominal modification. The illustration of their use as relative clause predicates is provided in (1a) and (1b) both by Russian participial constructions and their English translations:

(1) Russian (Indo-European > Slavic, Russia; personal knowledge)
a. *devočk-a* [***piš-uščˇ-aja*** *pis'm-o*][1]
girl(F)-NOM.SG write-PTCP.PRS.ACT-F.NOM.SG letter(N)-NOM.SG
'the girl [**writing** a letter]'
b. *pis'm-o* [***na-pisa-nn-oe*** *devočk-oj*]
letter(N)-NOM.SG PFV-write-PTCP.PST.PASS-N.NOM.SG girl(F)-INS.SG
'the letter [**written** by the girl]'

The category of participle as defined above is not universal in the sense that not all languages have the relevant forms. Nevertheless, it is clearly cross-linguistically valid, since the forms that fall under this definition are mentioned in the descriptions of numerous genealogically and geographically diverse languages. At the same time, as a consequence of such diversity, the forms that the label can refer to also demonstrate a significant degree of variation.

Participles, thus, form a rather heterogeneous group. For instance, in most European languages, such as Russian, English, or Finnish, each participial form can normally be used for relativizing one specific participant of the situation. To put it simply, the forms that relativize agents are referred to as *active participles*, cf. (1a), while the forms that relativize patients are referred to as *passive participles*, cf. (1b). Using the notion of *orientation* introduced by Lehmann (1984: 152) and later adopted by Haspelmath (1994: 153–154), we can say that participles of the European type are *inherently oriented*. On the other hand, in many other languages, such as Mongolic, Turkic, Nakh-Daghestanian or Dravidian, participles can be *contextually oriented*, which means that one and the same form can be used to relativize several participants of the situation, e.g. the agent, cf. (2a), the patient, cf. (2b), and the location, cf. (2c):

(2) Kalmyk (Mongolic; Russia; personal field notes)
a. [*bičəg* ***bič-ǯä-sən***] *küükə-n*
letter write-PROG-PTCP.PST girl-EXT
'the girl who is writing a letter'

[1] The square brackets in language data are henceforth used to show the borders of a relative clause unless indicated otherwise.

b. [*küük-n-ä* ***bič-ǯä-sən***] *bičəg*
girl-EXT-GEN write-PROG-PTCP.PST letter
'the letter which the girl is writing'

c. [*küük-n-ä* *bičəg* ***bič-ǯä-sən***] *širä*
girl-EXT-GEN letter write-PROG-PTCP.PST desk
'the desk at which the girl is writing a letter'

Despite this difference, inherently and contextually oriented participles share an important feature that is crucial for the definition of participles, namely they have to be morphosyntactically *deranked*. In the linguistic literature, participles are commonly described as *non-finite* forms; this notion, however, is notoriously hard to operationalize, since, as it has been recently shown in many typological studies, finiteness from a cross-linguistic perspective is best regarded as a gradual and multifactorial phenomenon, see Givón (2001), Cristofaro (2003, 2007), Nikolaeva (2013), and Chapter 4 of the present study for further discussion. For this reason, I choose to refer here to the distinction between *deranking* and *balancing* introduced by Stassen (1985: 76–83), see also Koptjevskaja-Tamm (1993), Cristofaro (1998, 2003), van Lier (2009)[2]. Dependent clause predicates that exhibit any morphological or syntactic deviation from the standard of the independent clause predicate in a given language and bear some formal marking of their status are referred to here as *deranked*, as well as the dependent clauses featuring such verb forms. In contrast, *balanced* verb forms are predicates of balanced dependent clauses, which structurally resemble independent clauses in the language in question. Balanced relative clauses as opposed to participial ones can be illustrated by the primary relativization strategy in European languages, where a relative clause is introduced by a relative pronoun, cf. (3a), and otherwise the structure of the clause and the form of the predicate is exactly the same as in the corresponding independent sentence, cf. (3b):

(3) Russian (Indo-European > Slavic, Russia; personal knowledge)

a. *devočk-a* [*kotor-aja* ***piš-et*** *pis'm-o*]
girl(F)-NOM.SG which-F.NOM.SG write-PRS.3SG letter(N)-ACC.SG
'the girl [which is writing a letter]'

b. *Devočk-a* ***piš-et*** *pis'm-o.*
girl(F)-NOM.SG write-PRS.3SG letter(N)-ACC.SG
'The girl is writing a letter.'

The differences that participial relative clauses in a given language exhibit in comparison to regular independent clauses in that language can take various forms, such as lack of the categorial distinctions pertaining to finite verb forms (e.g. tense, aspect, mood or person agreement), use of special categories not pertaining to finite verb forms (e.g. nominal agreement), or changes in the encoding of verbal arguments (e.g. subjects or

[2] That being said, for convenience I do sometimes use the term *non-finite* in the dissertation as a synonym for *morphosyntactically deranked*, especially when referring to the studies where this term is used, or when discussing languages in which the contrast between finite (=balanced) and non-finite (=deranked) forms is uncontroversial.

direct objects). For instance, in standard Russian the tense distinction in participial relative clauses is twofold (past vs. present) instead of threefold in independent clauses (past vs. present vs. future), while in Kalmyk there is no specialized present participle whatsoever, although present tense form exists in the verb paradigm for independent clauses[3]. The agent is also often expressed differently with participles if compared to finite predicates, for example by the instrumental in Russian, cf. (1b), or by the genitive in Kalmyk, cf. (2b) and (2c). All these differences and their combinations are further treated extensively in different parts of this dissertation.

1.2. Goals of the study

Although participles have been studied extensively in various individual languages, so far no systematic effort has been taken to list the genealogical units and geographical areas where they are especially common or at least attested. Probably the best information available on the matter is given in Haspelmath (1994: 153), but the author himself comments that his "impressionistic remarks are only meant to be suggestive, and much more comparative work needs to be done before any firm conclusions can be reached". Therefore, the first practical goal of this dissertation is to fill this gap and provide preliminary information on the representation of participles in the world's languages and their geographical distribution.

The broader and the more important aim of the study is to map out the space of variation demonstrated by participles in the world's languages. In order to do that, I investigate three major topics:

1) As shown above, participles can differ in their relativizing capacity: an inherently oriented form only relativizes a specific participant of the situation, while a contextually oriented form can relativize different participants depending on the context. The questions belonging to this part of the research are: What types of inherently oriented participles are attested, and what types are not? What are the limits of contextual orientation? What are possible motivations for the restrictions on participial orientation observed across languages?, the paradigms participles can form in individual languages, etc.), and thus to construct a morphosyntactic typology of participles.

2) The manifestations of deranking in participial relative clauses can be very different in different languages. Many typologists have discussed the properties that need to be eliminated or introduced in order to derive a deranked dependent clause from an independent one, cf. the scale of desententialization in Lehmann (1988), Generalized Scale Model in Malchukov (2004), criteria for finiteness in canonical typology in Nikolaeva (2013), and many others. There is, however, no typological study on these manifestations specifically in relative clauses. It is, therefore, reasonable to ask the following questions: What signals of deranking are available in participial relative clauses, and how are they related to each other? Which of these signals are especially relevant for participial relative

[3] The corresponding meaning in Kalmyk relative clauses is expressed by the past participle with a progressive marker, see Section 5.2.3 and example (124) for more information.

clauses if compared to other types of dependent clauses? How can we explain the variation and tendencies observed in this domain?

3) It is possible for a language to have either one participial form, or several of them. Both situations raise questions that I will try to answer in this study: In case a language has only one participle, what are the typical characteristics of this form? How is it different from participles that belong to a paradigm? If a language has more than one participle, what are possible criteria for the formation of the participial paradigm? Are the criteria independent, or do they show any interaction? Are there any restrictions regarding the organization of a participial paradigm, and if yes, then how can they be explained?

It is important to emphasize that this dissertation cannot be considered a cross-lingustic research of participles in general, i.e. from all the aspects of their use. In many languages, forms employed for adnominal modification and traditionally referred to as participles appear to be extremely polyfunctional. For instance, in most European languages, as well as in some Indic and Iranian languages, the passive construction is formed analytically by means of an auxiliary verb and a passive participle (Haspelmath 1990; Siewierska 1984: 126), cf. (4), while in many languages featuring contextually oriented participles these forms are also commonly used as predicates in complement and adverbial clauses, cf. (5a) and (5b) respectively and Section 2.4 on this issue.

(4) Russian (Indo-European > Slavic, Russia; personal knowledge)
Pis'm-o ***by-l-o*** ***na-pisa-n-o*** *devočk-oj.*
letter(N)-NOM.SG be-PST-N.SG PFV-write-PTCP.PST.PASS-N.SG girl(F)-INS.SG
'The letter **was written** by the girl.'

(5) Kalmyk (Mongolic; Russia; personal field notes)
a. [*küükə-n* *bičəg* ***bič-ǯä-s-i-n*** ^{j}] *bi* *üz-lä-v*
girl-EXT letter write-PROG-PTCP.PST-ACC-POSS.3 1SG see-REM-1SG
'I saw that the girl was writing a letter.'
b. *küükən* [*bičəg* ***bič-ǯä-sən-d-än***] *cä* *uu-v*
girl-EXT letter write-PROG-PTCP.PST-DAT-POSS.REFL tea drink-PST
'The girl was drinking tea while writing a letter.'

The cross-linguitic survey of such forms in all their functions would be exceedingly broad. Therefore, being the first attempt of a wide-scale typological study dealing with participles, this study focuses on the function that can be regarded as the core one for participles as a cross-linguistically applicable notion, namely the function of the predicate of a relative clause. Indeed, with respect to their function, both participles and relative clauses are traditionally regarded as parallel to adjectives, all of them being employed for adnominal modification, cf. Table 1, a combination of the tables presented by Haspelmath (1995: 4) and van Lier (2009: 68). Furthermore, if a relative clause is deranked, its predicate is considered a participle by definition, as follows from the Section 1.1 above. Forms that qualify as participles can have many other syntactic functions as well, but adnominal modification is something that they all have in common. Thus, investigating relative clauses with participial predicates can reveal the properties and distinctions that are relevant for participles as a typologically valid category and that can be further manifested in other constructions. The use of participles in independent sentences was

closely examined earlier by Kalinina (2001), while the systematic analysis of syncretism between relative clause predicates and predicates of other dependent clauses apparently remains the subject for further studies.

Table 1. Non-finite verb forms and their core syntactic functions

Syntactic function	argument	adnominal modifier	adverbial modifier
Word class	noun	adjective	adverb
Non-finite verb form	verbal noun (masdar), infinitive	participle	converb
Dependent clause	complement clause	relative clause	adverbial clause

Apart from its own practical and theoretical value, the typological study of participial relative clauses fits very naturally into the general interest to subordinate structures that has been evident among typologists in recent years, cf. Cristofaro (2003), van Lier (2009), Gast & Diessel (2012), van Gijn (2014), Ross (2016), and many others. This dissertation contributes to the general study of variation found in deranked structures in the languages of the world. In addition, it fills an important gap in the study of morphosyntactically deranked forms. The two others, namely action nominals (verbal nouns) and converbs, were extensively discussed in Koptjevskaja-Tamm (1993) and Haspelmath (1995) respectively. As a result, the categories investigated in these studies got widely recognized as cross-linguistically valid, and the use of the labels became more uniform in both descriptive and theoretical studies. The problem of uniformity in the terminology is currently topical in the study of participles, see Section 2.2, and a cross-linguistic study like this one is the best way to provide a grounded solution to it.

1.3. Approach

This dissertation is a typical study in functional-typological linguistics, the framework that became widespread after the seminal work by Joseph Greenberg (1963), and has been later developed by many other linguists (cf. Comrie 1981, Croft 1990, Givón 2001, among others). The research conducted within this framework aims at establishing the range of cross-linguistic variation. The typologists, therefore, try to find out which properties are shared by all or most of the languages, which features are common, and which are extremely rare or, presumably, impossible in natural language.

The approach adopted in this study can be characterized as *nonaprioristic* because no a priori assumptions are made with respect to the kinds of categories and constructions that languages might have (Haspelmath 2014: 492). The data for typological comparison comes primarily from the sources provided by descriptive linguists, but the analysis does not have to be based on the categories established for individual languages. Instead, the idea is to develop universally applicable *comparative concepts* that do not necessarily correspond to any *descriptive categories* used in descriptions of particular languages

(Haspelmath 2010). Comparative concepts are not psychologically real, and the only requirement is that they allow for meaningful cross-linguistic comparison and for formulating relevant statements concerning the languages of the world and natural language in general. The key comparative concept for the present study is, naturally, the concept of *participle* discussed in detail in Chapter 2.

Apart from determining the borders of language variation, functional typologists are also interested in interpreting the results. The assumption underlying this approach is that many aspects of language structure can be explained with reference to language function. In other words, universal tendencies regarding language structure can be accounted for in terms of the semantic and pragmatic meanings expressed by certain structures in human communication, cf. Croft (1990, 1995), Cristofaro (2003). Functional motivations governing the emergence, development and use of particular structures are commonly proposed based on synchronic distributional evidence. Over recent decades, however, a number of linguists (e.g. Bybee 1988, 2008; Dryer 2006) have argued that the explanations proposed for given distributional patterns should rather refer to the diachronic processes that give rise to these patterns, rather than to the patterns themselves, see Cristofaro (2012: 647). In a more moderate view, the diachronic processes are regarded as a valuable source of evidence for particular principles that might motivate certain observed linguistic phenomena. Unfortunately, in many cases the latter approach appears to be problematic due to the lack of relevant data, which is exactly the case with participial relative constructions addressed here. Therefore, most explanations proposed throughout this dissertation can refer to diachrony only to a very limited extent.

In the past decades, at least since the study of Nichols (1992), more typologists are also getting interested in explaining the patterns of linguistic diversity from the geographical point of view. This typological paradigm is commonly referred to as "what's where why?", which includes investigating universal preferences and geographical skewings ("what's where?"), as well as explaining them as historically grown and interrelated among themselves and with other distributions, e.g. social, cognitive, and genetic patterns ("why?"), cf. Bickel (2007) for a general overview and further references. Nevertheless, before this kind of research can be done, one should establish a set of fine-grained variables that would later allow to capture similarities and differences of structures across languages. In order to do this, a qualitative research like the present one should be done. Therefore, apart from being a contribution to the general linguistic knowledge, this dissertation can also be considered a foundation for further typological work in this domain.

1.4. Sample, data, and methods

As a typological research, this dissertation aims at making claims about natural language in general and thus, in principle, has all the languages of the world as the object of study. However, since it is clearly impossible to examine all human languages ever spoken (according to the estimate given in Bickel 2013, there have been at least half a million

languages on earth so far), it is necessary to create a sample of languages that would be most adequate for the goals set in the study.

Given that this study of participles is the first attempt to approach the phenomenon that has not been extensively investigated from a typological point of view, the sampling strategy to be used should aim at capturing the greatest possible linguistic diversity. As mentioned above, we do not even know precisely in which language families or geographical areas participles are attested and in which not. Therefore, the investigation should be based on a *variety sample* (as opposed to *probability samples* and *random samples*, which are commonly employed for statistical analysis, cf. Rijkhoff et al. 1993, Rijkhoff & Bakker 1998). Since not much preliminary information on participles from a cross-linguistic perspective is available before this study, it is not possible to control for any factors that might refer to the nature of the variables, i.e. types of participles and participial constructions that can be distinguished in the world's languages, or the parameters with respect to which they might differ. Also, due to the same reasons, we cannot estimate the number of such variables beforehand, and therefore, it is impossible to apply the sampling procedure introduced by Rijkhoff & Bakker (1998), which includes a method of calculating the ideal sample size for a certain object of study.

Taking all that into account, the optimal strategy for this study is simply to build a possibly large sample, aiming at the maximal independence of the languages, i.e. trying to avoid bias in their choice. As noted by Rijkhoff et al. (1993: 172), the most important bias a typologist should avoid when creating a language sample is the genetic one, which in its turn can generate other sources of bias, namely geographic, typological, and cultural. It is necessary, therefore, to stratify the sample on some level of genealogical classification.

The sample used in this study is genealogically stratified at the level of *genus*, the notion explained in Dryer (1989) and used in The World Atlas of Language Structures (henceforth WALS, Dryer & Haspelmath 2013) as a level of classification that is intended to be comparable in time depth across language families all around the world. The genus has a time depth of 3500–4000 years or less, and the examples of genera are the standard subfamilies of Indo-European, such as Germanic, Slavic or Celtic. Each language isolate is regarded as constituting a genus by itself. The genealogical classification employed in this study is the one represented in WALS, which is mostly based on the classification given in the 14th edition of Ethnologue (Grimes 2000). If a certain language considered in the study is not present in the WALS database, the genus it belongs to is determined based on the data provided in the source on this language and/or in Glottolog 2.7 (Hammarström et al. 2016). Glottolog 2.7 was also used in this study as a source of information on top-level language families.

The choice of the languages representing particular genera was determined by several factors. Since the first step of the research was finding as many languages with relevant forms as possible, all the sources providing information on the existence of deranked relative clauses in certain languages were taken into account. These were mostly typological works dealing with various subordinate structures, such as Koptjevskaja-Tamm (1993), Cristofaro (2003), Malchukov (2004), van Lier (2009), Wu (2011), and van Gijn (2014), among others. In addition, there is also the problem of insufficient language documentation. For many languages no adequate description is available, especially concerning subordinate structures, so for some genera searching for information on

deranked relative clauses was equal to simply searching for the fullest descripition of a language belonging to this genus. Due to the lack of such descriptions, some genera could not be investigated in this study.

As a result of the preliminary work, it was possible to find relatively reliable information on the presence or absence of participial relative clauses for 360 genera out of 544 included in WALS. In rare cases, more than one language per genus was considered, mainly if a particular genus featured languages both with and without participial relative clauses (e.g. Mẽbengokre and Canela-Krahô > Ge-Kaingang; Tsafiki and Awa Pit > Barbacoan), or if it was known beforehand that participles or participial systems in two closely related languages demonstrate considerable difference from each other (e.g. Beng and Wan > Eastern Mande; Imbabura Quechua and Tarma Quechua > Quechuan; Nanai and Even > Tungusic). In addition, some points in the dissertation are illustrated by the data from languages that are not included in the sample. It mostly happens if a particular feature described for the participles in a given language is typologically rare or unique, but otherwise too little information is available on the deranked relative clauses in this language. It should be emphasized that since the goals of the present dissertation are qualitative rather than quantitative, the inclusion of additional languages does not invalidate the sample in any way.

The map of all the languages investigated in the preliminary phase of the work is presented in Figure 1 below (black dots stand for the languages that have participial relative clauses, whereas white dots represent the languages that do not have participial relative clauses). The languages that were found to not have participles are listed in Appendix 1c, along with the sources of information on them. The core sample consisting of 100 languages that have participles is introduced in Section 2.6, and some additional information is also provided in Appendix 1a. Unfortunately, for some of the languages that seem to have participles, the information on the relevant forms is very limited, so they are not included in the core sample. The list of these languages and their descriptions is given in Appendix 1b.

As can be seen from the map, forms classified as participles can be found in languages all over the world. As it was noticed by Haspelmath (1994), they are indeed most typical for Eurasia, with the exception of South-East Asia. Among the big language families in Eurasia, participles are typical for Indo-European, Uralic, Nakh-Daghestanian and Dravidian languages, as well as for Turkic, Mongolic and Tungusic. In fact, they can be regarded as an areal feature common for at least the languages of Northern Eurasia, cf. Pakendorf (2012), Shagal (2016). On the other hand, among Austro-Asiatic languages, which are generally poor in inflectional morphology, only Kharia (Munda; India) in my sample possesses forms that can be classified as participles.

In Papunesia and Australia, participial relative clauses are attested only occasionally, while most languages in these areas do not exhibit this type of forms. Austronesian languages, for instance, mostly employ linking particles rather than specialized non-finite forms for relativization, cf. Foley (1980). Most of Australian languages make use of the so-called *adjoined relative clauses* (the term introduced in Hale 1976), a generalized subordinate clause type, which can receive different interpretations depending on the syntactic and pragmatic context. Fairly often the relative clause is not adjacent to its

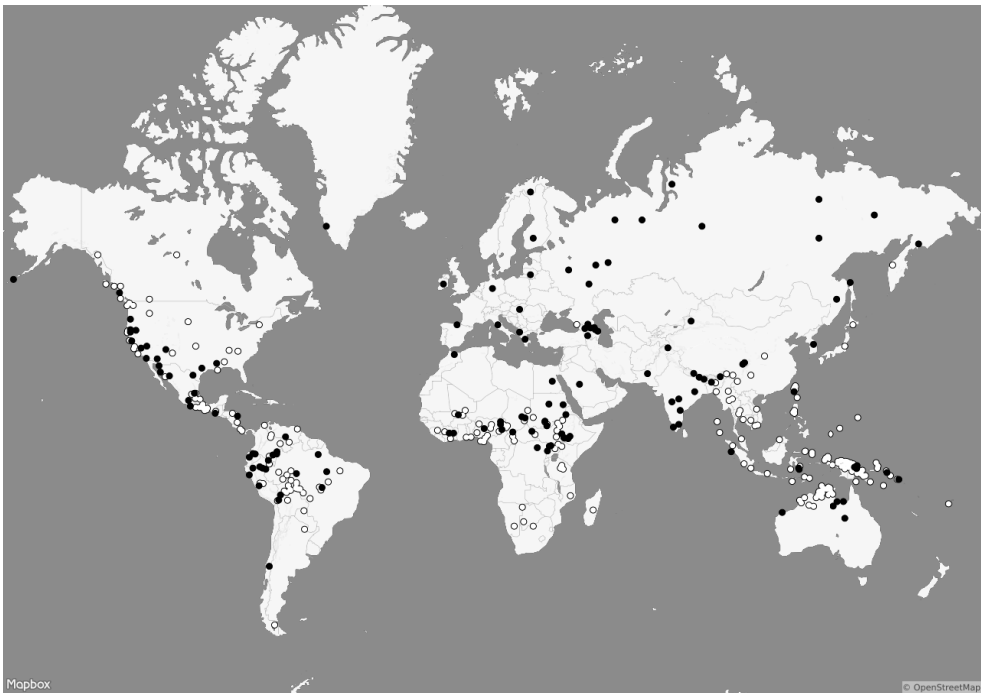


Figure 1. All the languages investigated in the dissertation

nominal head, and in most languages, the predicates of relative clauses are fully finite, even though some of them are able to attach case morphology, cf. Nordlinger (2002: 4).

Participles are characteristic of about half of the languages examined in Africa, all of them to the North of the Equator, although for most of them very little data is available. Participial forms are fairly well represented in the Afro-Asiatic language family (I was able to find them in more than half of the genera that I examined), while for other families they are relatively infrequent.

In the Americas, participial forms are mostly observed in the languages of the Western coast, although some languages of the Amazon make use of deranked relative clauses as well. The existence of participles in South America is, in fact, quite expectable, since many languages there are known to make use of nominalization (including non-finite nominalization) as a subordination strategy, cf. Dixon & Aikhenvald (1999) for the Amazon basin, Crevels & van der Voort (2008) for Guaporé-Mamoré area in Bolivia and Brazil, and van Gijn (2014) for the Andean linguistic area, with reference to Torero (2002) and Adelaar (2004). Moreover, van Gijn (2014) shows that languages possessing nominalized structures are significantly more common in South America if compared to the global distribution calculated based on the study of subordination by Cristofaro (2003). Unfortunately, for many American (especially North American) languages that seem to have participial forms, no good sources are available, or non-finite subordination is only touched upon very briefly. All in all, according to the map resulting from my survey, participles appear to be a more widespread phenomenon than traditionally assumed.

The sources used in the dissertation are descriptive grammars of the languages included in the sample, typological and language-specific articles dealing with the relevant topics,

as well as first-hand data obtained from the specialists in particular languages and collected during several field trips[4]. In most cases in the dissertation, I have reproduced the spellings and the glossings used in the sources from which the language data is taken. As a result, many forms treated as participles in this study can have other glosses, since they may represent other descriptive categories in particular languages. The only standardization procedure that has been applied concerned the cases when different abbreviations were employed by different authors for the same category. Some minor changes have also been made in order to avoid confusion where it might have occurred.

The methods used in this dissertation are predominantly qualitative. Because of considerable data limitations and the resulting unbalanced nature of the sample, I do not employ any quantitative methods to account for the geographical distribution of participles. Neither is it possible to conduct any consistent statistically grounded comparison of all languages of the sample, since on many of the significant parameters no data is available for at least several languages. Due to that, for each aspect of participles or participial relative clauses discussed in the study, I rather pick the relevant languages for which the respective information is available in descriptive grammars. This makes qualitative analysis the most reasonable methodological choice for the current research.

1.5. Organization of the study

The dissertation is organized as follows. In Chapter 2, I develop a typologically oriented definition (or comparative concept) of participle which is based on several other comparative concepts, such as relative clause, deranking and verbal paradigm. I further specify the range of forms and constructions that fall into the scope of the present study. Chapters 3–6 are devoted to various properties pertaining to individual participial forms. Chapter 3 discusses the phenomenon of participial orientation, i.e. the range of participants that can be relativized by a particular participle Based on the available data on the languages of the sample, I propose a number of typologically relevant orientation types, and discuss possible motivations for their development. In Chapters 4–6, I discuss the deviations that participial relative clauses exhibit if compared to independent clauses in individual languages. In Chapter 4, I provide an overview of several recent theoretical approaches to the topic, and identify the criteria relevant for cross-linguistic comparison. Chapter 5 discusses the morphosyntactic deviations exhibited by participles, whereas Chapter 6 considers the deviations manifested in argument marking. In Chapter 7, I address the topic of the interaction of individual forms within participial paradigms. I provide an overview of participial systems based on different criteria, and formulate some

[4] The data on Kalmyk (Mongolic; Russia) comes from the three field trips to the Republic of Kalmykia organized by the Saint Petersburg State University in 2006–2008. The data on Nanai (Tungusic; Russia) comes from the two field trips to the Khabarovsk Krai in 2007 and 2009. The data on Erzya (Mordvin; Russia) partly comes from the field trip to the Republic of Mordovia organized by the Helsinki Area and Language Studies group in 2013. The data on Nivkh (Nivkh; Russia) and Uilta (Tungusic; Russia) partly comes from the field trip organized by the Helsinki Area and Language Studies group in 2014.

generalizations concerning their possible organization. A summary of the results, prospects for future research and concluding remarks are presented in Chapter 8.

2. Defining participles

2.1. Introduction

Although the label *participle* is widely used in linguistic literature, the term is certainly far from being well-defined. For a typological study like this one, however, providing a precise definition for the object of investigation is of utmost importance. The goal of the present chapter is to discuss possible problems one might encounter while formulating a definition of participle suitable for cross-linguistic comparison, and, as a result, to develop such definition.

I will start by presenting several traditional definitions of participles and the conceptions they are based upon. I will also show why these definitions appear to be problematic for a wide-scale typological study. This discussion constitutes the topic of Section 2.2. As an alternative to the existing definitions, in Section 2.3 I will propose a cross-linguistically applicable comparative concept of participle based on several other comparative concepts, namely the concepts of relative clause (Section 2.3.1), verb form (Section 2.3.2), and deranking (Section 2.3.3). Section 2.4 is specifically devoted to the syncretism of participles and nominalizations, a very widespread phenomenon in the languages of the world, which has been pointed out in many works, such as DeLancey (2002), Comrie & Thompson (2007), Genetti et al. (2008), and others. In Section 2.5, I provide an overview of infinitival relative clauses, a phenomenon which shares certain features with participial relative clauses, and I give the reasons for not discussing this type of clauses in this study. Finally, in Section 2.6, I summarize the main points discussed in this chapter.

2.2. Critique on the traditional definitions

Most linguistic dictionaries and encyclopedias give quite vague definitions of participles, which generally embrace all non-finite forms, cf. (6), sometimes with the exceptions of infinitives, cf. (7):

(6) A traditional term for a non-finite form of the verb. (Hartmann & Stork 1972: 165)

(7) A traditional grammatical term referring to a word derived from a verb and used as an adjective, as in *a laughing face*. <…> In linguistics the term is generally restricted to the non-finite verb forms of verbs other than the infinitive. (Crystal 2003: 337–338)

Furthermore, Trask (1993: 200–201) notes that this label can also be extended to non-finites which do not function as adjectival or adverbial modifiers, but only serve to combine with auxiliaries in the formation of periphrastic verb forms, such as the so-called perfect participle *finished* in *Lisa has finished her translation*. The last extension in

particular seems to make the category unreasonably broad. Such definitions, however, do not appear out of nowhere. They should rather be seen as an attempt to unite under one term the properties of all the forms that bear the label *participle* in numerous descriptions of individual languages. Thus, the concept represented in dictionaries is the result of numerous successive extensions. But what are the mechanisms of this development?

Participles in the narrowest sense are traditionally regarded as verb forms that "behave like adjectives with respect to morphology and external syntax" (Haspelmath 1994: 152). Indeed, for some languages this definition works perfectly. For example, in Finnish there is a distinct class of adjectives neatly determined from both morphological and syntactic point of view, and Finnish participles fit faultlessly into this class, compare (8a) with an adjective as adnominal modifier and (8b), where the same noun is modified by a participle:

(8) Finnish (Uralic > Finnic; Finland; personal knowledge)
a. *Keitto-a* *voi* *tehdä* ***tuore-i-sta*** *sien-i-stä*
soup-PART.SG can.3SG do.INF fresh-PL-ELA mushroom-PL-ELA
'One can cook soup with fresh mushrooms.'
b. *Keitto-a* *voi* *tehdä* ***kuiva-tu-i-sta***
soup-PART.SG can.3SG do.INF dry-PTCP.PST.PASS-PL-ELA
sien-i-stä
mushroom-PL-ELA
'One can cook soup with dried mushrooms.'

Nevertheless, in many languages that also exhibit a rigid part-of-speech system[5] with a well-defined class of adjectives, the distribution of the non-finite verb form which can function as an adnominal modifier appears to be broader than that of a regular adjective. For instance, the English *-ing* form, which can be considered a participle due to adjectival uses like the one illustrated in (9a), also occurs in adverbial and complement clauses, cf. (9b) and (9c) respectively:

(9) English (Indo-European > Germanic; United Kingdom; personal knowledge)
a. *The note was addressed to the girl* [***sitting*** *in the back row*].
b. *During my first years in college, I mostly read comics* [***sitting*** *in the back row*].
c. *I hate* [***sitting*** *in the back row*], *because I can't see anything from there.*

Moreover, according to the estimations provided by Hendery (2012: 171), non-finite verb forms used for adnominal modification in the great majority of cases are actually not specific to this function, but can be found in other subordinate constructions as well. This observation is supported by the data provided in Appendix 4 of Cristofaro's (2003)

[5] The part-of-speech system in a language is considered rigid if it has separate lexical classes for functionally defined syntactic slots, namely verb = head of a predicate phrase, noun = head of a referential phrase, adverb = modifier within a predicate phrase, adjective = modifier within a referential phrase, cf. Hengeveld et al. (2004: 530).

typological study of subordination. Van Lier (2009: 206–210) shows that in a genealogically and geographically balanced sample of 50 languages all logically possible combinations are attested, when it comes to the types of dependent clauses in which certain non-finite verb form can function as a predicate. The function of adnominal modification can, therefore, combine with either the function of adverbial modification, the reference function, or both.

The latter, most flexible, case can be illustrated by the verb form carrying the *-n-* marker in Kayardild, which can function as a predicate of a relative clause, cf. (10a), a predicate of a complement clause, cf. (10b), or a predicate of an adverbial clause, cf. (10c):

(10) Kayardild (Tangkic; Australia; Evans 1995: 474–476)

a. *nga-ku-l-da* [***wirr-n-ku***] *dangka-wu* *kurri-ju*
1-INC-PL-NOM dance-NMZ-MPROP man-MPROP see-POT
'We will watch the dancing man.'

b. *ngada* *kurri-ja* [*niwan-ji* ***budii-n-marri***]
1SG.NOM see-ACTUAL 3SG.POSS-MLOC run-NMZ-PRIV
'I saw that he was not running.'

c. [*bilaangka-nurru* ***kari-i-n-da***] *ngada* *warra-j*
blanket-ASSOC cover-MID-NMZ-NOM 1SG.NOM go-ACTUAL
'I went along, covering myself in a blanket.'

In Krongo, the marker *n-* is used in non-finite relative clauses, cf. (11a), and in non-finite adverbial clauses, cf. (11b):

(11) Krongo (Kadugli-Krongo > Kadugli, Sudan; Reh 1985: 256, 333)

a. *n-úllà* *àʔàŋ* *kí-ǹt-àndìŋ* [***n-úufò-ŋ*** *kò-níimò*
1/2-IPFV.love I LOC-SGT-clothes CONN.N-IPFV.sew-TR POSS-mother
kàtí]
my
'I love the dress that my mother is sewing.'

b. *n-áa* *t-ánkwà-ànì* [***n-úrùná-ŋ*** *úuní*
CONN.N-COP INF-go.round-DETR CONN.N-IPFV.watch-TR footprint
kànáày]
POSS.3PL
'She goes round, watching their footprints.'

The forms that combine the function of a predicate of a relative clause and a predicate of a complement clause are especially common. Van Lier (2009: 209–210) provides an example from Turkish, but this combination is attested in other languages of the proposed Altaic family as well, for example in Nanai, compare the relative clause in (12a) and the complement clause in (12b), which both have one and the same *-xə(m)-* form as a

predicate[6]. This last pattern is so common that it deserves to be discussed separately, cf. Section 2.4 of the present chapter.

(12) Nanai (Tungusic; Russia; personal field notes)
a. [*si* ***niru-xə-si***] *daŋsa-wa* *mi* *xola-xam-bi*
2SG write-PTCP.PST-POSS.2SG book-ACC 1SG read-PTCP.PST-POSS.1SG
'I have read a book that you had written'
b. [*si* *daŋsa-wa* ***niru-xəm-bə-si***] *mi*
2SG book-ACC write-PTCP.PST-ACC-POSS.2SG 1SG
xola-xam-bi
read-PTCP.PST-POSS.1SG
'I have read that you had written a book'

Taking such polyfunctionality into account, this is not at all surprising that the term *participle* got reinterpreted as referring to virtually any non-finite verb form that can be used in at least some of the functional syntactic slots discussed above. This especially concerns the forms that are used for adverbial modification, presumably because due to the lack of such specialized forms in Latin or Classical Greek, the Eurocentric linguistic tradition did not provide a separate term for this notion, cf. Haspelmath (1995: 2) for this observation and König & van der Auwera (1990) for an overview of "adverbial participles" in European languages. The latter fact is reflected, for example, in the use of the term *participle* to refer to non-finite adverbial modifiers in many Australian languages, cf. Cook (1987: 232–267) for Wagiman, Furby & Furby (1977: 87–93) for Garrwa, Birk (1976: 129–131) for Malakmalak, and many later works, and in many others, cf. the term *processual participle* in the grammar of Armenian by Dum-Tragut (2009: 205–206).

One possible solution to this problem would be to not allow such typologically induced extensions and always to keep the connection between adjectives and participles language specific, even in a typologically oriented definition. This means that we should say that a participle in a particular language is a non-finite verb form that behaves like adjectives in that language with respect to morphology and external syntax. This approach, apparently, is used by Haspelmath (1994) in a paper on passive participles, although it is not expressed overtly. However, it turns out that formulating the definition of participle based on the concept of adjective can be problematic as shown in what follows.

First, it is not uncommon that verb forms used for adnominal modification, which clearly correspond to prototypical participles in the languages that have them, may demonstrate certain (minor) differences from adjectives in a given language. For instance, in Hup, relative clauses with non-finite predicates always precede the modified noun, while adjectives follow it, cf. Epps (2008: 828), compare (13a) and (13b), where modified nouns are underlined:

[6] This type of polyfunctionality can also be illustrated by the data from Kalmyk (Mongolic; Russia) provided in the introductory chaper, cf. (2a)–(2c) for the adjectival use of the *-sən* form and (5a) for the same form functioning as a predicate of a complement clause.

(13) Hup (Nadahup; Brazil; Epps 2008: 829–832)

a. *yúp* [*hɨd* ***key-ʔě-p***] *hɔhɔ́h=b'ay,* *ham-yɨʔ* *ní-ay-áh*
that.ITG 3PL see-PFV-DEP toad=REP go-TEL be-INCH-DEC
'That toad they were looking at, (it) went away.'

b. *hɨd* *nɔg'od* ***j'á*** *pæm-hi-ham-tég*
3PL mouth black sit-descend-go-FUT
'They'll all be sitting around with black mouths (from eating coca).'

In addition to that, as explicitly stated in Haspelmath (1994: 152), the definition of participle referring to adjectives obviously can only work for those languages that have adjectives as a primary word class. This approach, thus, rules out all the languages which resort to non-lexical strategies for expressing adnominal modification, i.e. mainly languages where adjectives are a subclass of verbs, or verb-like adjectives, cf. Dixon (2004). An example of such language is Lakhota, where adjectives are a subset of stative verbs (Van Valin 1977: 41). Consequently, the only way to modify a noun is through forming a fully finite relative clause with a verb-like adjective as its predicate, cf. (14):

(14) Lakhota (Core Siouan, United States; Van Valin 1977: 9, 23)

a. ***kha'ta***
hot
'he is hot'

b. *mni'* [***khata***] *el* *owa'gnãka* *cha* *nable'che*
water hot into I.put and.so it.breaks
'I put it in hot water, and so it broke.'

Nevertheless, if we have a closer look at languages with verb-like adjectives, we will see that excluding them would mean overlooking a significant number of forms that demonstrate striking similarities with the forms that are incontrovertibly classified as participles in other languages. Let us consider the forms of this kind in three languages without primary adjectives from different parts of the world, namely Garo, cf. (15), Seri, cf. (16), and West Greenlandic, cf. (17). In the examples below, sentences in (a) illustrate regular independent clauses in each language, while constructions in (b) are deranked relative clauses modifying nouns:

(15) Garo (Sino-Tibetan > Bodo-Garo; India; Burling 2004: 299)

a. *Me·chik* *skang-o* *rua-cha* *a·bol-ko* *den·-a-ming.*
women previously-LOC axe-INS firewood-ACC cut-NEUT-PST
'Women previously chopped the firewood with an axe.'

b. [*me·chik-ni* *skang-o* *rua-cha* ***den·-gipa***] *a·bol*
women-GEN previously-LOC axe-INS cut-NMZ firewood
'firewood that the women previously cut with an axe'

(16) Seri (Seri; Mexico; Marlett 2012: 215)

a. *Hapxa* *quij* *ih-mii-ho.*
cottontail the.CM 1SG.SUBJ.TR-PROX-see
'I saw the cottontail rabbit.'

b. [*hapxa* ***h-oco-ho***] *quij*
cottontail 1.POSS-NMZ.O-see the.CM
'the cottontail rabbit that I saw'

(17) West Greenlandic (Eskimo-Aleut > Eskimo; Greenland; van der Voort 1991: 20)
a. *Ippassaq angut naapip-para.*
yesterday man meet-1SG.SUBJ.3SG.OBJ.IND
'Yesterday I met the man.'
b. *angut* [*ippassaq* ***naapi-ta-ra***]
man.ABS.SG yesterday meet-PTCP.PASS-POSS.1SG.ABS.SG
'the man I met yesterday'

As it can be seen from these examples, the forms functioning as predicates in relative clauses (in bold) clearly differ from independent clause predicates in their morphology and syntax. First, all of them have special subordinating morphemes marked as NMZ 'nominalization' (Garo), NMZ.O 'object nominalization' (Seri) or PTCP.PASS 'passive participle' (West Greenlandic). Second, they do not have the ability to attach certain affixes characteristic of finite verb forms, such as tense markers (Garo) or markers referring to the core participants of the situation (Seri, West Greenlandic). Finally, all of these forms differ from finite verbs in the corresponding languages in their subject encoding. In all the cases, subject are expressed as possessors, which can be seen from the genitive case marking on the word *me·chik-ni* 'women-GEN' in the Garo examples, and from the possessive affixes on the relative clause predicates in Seri and West Greenlandic. In addition to that, the non-finite predicate of the relative clause in West Greenlandic shows agreement with the modified noun in case and number (ABS.SG 'absolutive singular'). All these features bring the forms in question very close to the participles in the languages where adjectives and participles are clearly distinct from other word classes. For example in Finnish, the so-called agentive participle used for direct object relativization also has its own segmental marker *-ma*, lacks the possibility to express tense, and encodes the agent as a possessor. Moreover, exactly like the *-ta-* form in West Greenlandic, it agrees with the modified noun in case and number, see the translation of the West Greenlandic construction into Finnish in (18):

(18) Finnish (Uralic > Finnic; Finland; personal knowledge)
[*eilen* ***tapaa-ma-ni***] *mies*
yesterday meet-PTCP.A.NOM.SG-POSS.1SG man.NOM.SG
'the man I met yesterday'

It should also be mentioned that predicates of relative clauses in West Greenlandic are of particular interest for the typological study of participles. The reason for this is that they are only used in headed (and only marginally headless, cf. van der Voort 1991: 33) relative clauses, hence adnominal modification is their primary syntactic function. In many other languages with the same word class pattern, relative clause predicates are also widely used in headless relative clauses and complement clauses, so it is possible to simply classify them as lexical or clausal nominalizations (although in Section 2.4 I will argue that this should not prevent regarding them as genuine participles in a typological

study), but non-finite adnominal modifiers in West Greenlandic are participles in their own right, so the comparative definition of participle should be formulated so that they would be included under the scope of investigation.

2.3. Participle as a comparative concept

Taking into account the outlined diversity of structures and languages that exhibit them, it is most reasonable for a typological study to formulate a comparative concept of participle in the sense of Haspelmath (2010). Since the primary goal of such comparative concept is to allow for cross-linguistic comparison, it does not have to be psychologically real, and it does not have to correspond to any language-particular categories. Nevertheless, the ultimate goal is to study a cross-linguistic category whose members are similar enough to warrant a scholarly responsible comparison. For this purpose, I apply the method introduced in Rijkhoff (2016), which requires that defining a category starts with employing functional criteria, since they have the widest cross-linguistic applicability. After that, formal and semantic restrictions are selected to ensure that the items included in the scope of investigation form a meaningful cross-linguistic morphosyntactic category.

The typological definition of participle introduced in this study is based on three comparative concepts consistently identifiable from a cross-linguistic perspective, namely the concepts of *relative clause*, *verb form* and *deranking*. The first concept, *relative clause*, is primarily defined functionally, while the two others, *verb form* and *deranking*, are rather based on formal criteria. All the three concepts will be discussed separately in the following sections.

2.3.1. Relative clause

As it has already been mentioned above, the prototypical syntactic function of participle is adnominal modification. Since participle is verbal in nature, it can obviously serve as a predicate of a verbal clause. Therefore, it seems reasonable to base the comparative concept of participle on the type of clauses for which the function of adnominal modification is a defining feature, i.e. relative clauses (RCs). The definition of the relative clause adopted in this study is very straightforward, and uses the one provided by Lehmann (1986: 664) as a basis. The relative construction is understood here as a construction consisting of a nominal (*head*) and a subordinate clause interpreted as attributively modifying the nominal (*relative clause*). However, since the definition is so concise, several very important clarifications have to be made.

a) Restrictive and non-restrictive relative clauses

It is fairly common among typologists to define relative clauses in a more semantic way, consider definitions in (19) and (20) below:

(19) We consider any syntactic object to be an RC if it specifies a set of objects (perhaps a one-member set) in two steps: a larger set is specified, called the domain of relativization, and then restricted to some subset of which a certain sentence, the restricting sentence, is true. (Keenan and Comrie 1977: 63–64)

(20) A relative clause (RC) is a subordinate clause which delimits the reference of an NP by specifying the role of the referent of that NP in the situation described by the RC. (Andrews 2007: 206)

The reason why I prefer not to use such definitions is because they narrow the scope down to *restrictive* (or defining) relative clauses, thus excluding *non-restrictive* (or non-defining/appositive) ones. At the same time, the distinction between restrictive and non-restrictive relative clauses appears to be of some relevance for the distribution of participial relative clauses. For instance, Lehmann (1984: 270–280) formulated a typological prediction, according to which if a language has two relativization strategies one of which is prenominal and participial and the other one is postnominal and finite, the participial strategy will be mostly used for restrictive relative clauses. The proposed explanation is based on the fact that semantic integration connected to the contribution to referent identification is parallel to syntactic integration into the noun phrase due to nominalization, which is characteristic of participial relative clauses. This claim, however, has not been tested on a representative sample of languages, and the illustrative example from Turkish provided by Lehmann (1984: 278) has been criticized by Haig (1998: 126–128), so Lehmann's hypothesis clearly requires further investigation, for which purpose possible non-restrictive participial relative clauses should be considered in a typological study as well.

Unfortunately, the information on this matter is extremely limited, and is usually only available for some most thoroughly documented languages. In most cases, the lack of information in a description is probably due to the fact that the language makes no distinction between the two constructions, or the dictinctional is only intonational, cf. Comrie (1981: 139), but it is also commonly the case that only restrictive relative clauses are taken into account by the author. Because of that, I am not aiming at conducting a proper research of this issue within the present study. Nevertheless, there seems to be no need to exclude non-restrictive relative clauses in general. Therefore, the comparative concept of relative clause used here as a basis for the concept of participle includes both restrictive and non-restrictive relative clauses.

b) Headed and headless relative clauses

Another clarification concerns headless (or free) relative clauses, i.e. constructions that lack a head nominal. An example of such construction from Hup is given in (21a). Commonly, syntactic typologies only recognize the binary distinction between *headed* and *headless* relatives, but it has been recently shown by Epps (2012) that the ability of relative clauses to appear with or without a head nominal may be best understood as a continuum, based on the degree to which the element appearing in the role of the modified nominal may be understood as a lexical or a grammatical entity. For instance, apart from headless, cf. (21a), and headed relative clauses, cf. (21b), Hup also has several

intermediate constructions exhibiting varying degree of grammaticalization of the head nominal. One of such constructions, a relative clause with a bound noun *=teg* 'tree' cliticized to the dependent verb form, is given in (21c):

(21) Hup (Nadahup; Brazil; Epps 2012: 195–198)

a. *tih* *tɔhɔ-yɨʔ-ay=mah,* [*tɨnɨ̌h* *hɯ́* *ni-ʔě-p*],
3SG finish-TEL-INCH=REP 3SG.POSS animal be-PFV-DEP
[*húp* *nɨ̌h* *hɯ́* *ni-ʔě-p*]
person POSS animal be-PFV-DEP
'It was all gone, that which had been his game animal, that which had been the person's game animal.'

b. *ʔǎh=yɨʔ* [*ʔám=tœ̃hʔín* *tih* *ní-ĩ̃p*] ***hayám-ăn*** *kéy-éh*
1SG=FOC 2SG=wife 3SG be-DEP village-OBJ see-DEC
'I have seen the village [that your wife is living in]!'

c. *[ʔɨn* *wǽd-œp*]***=teg*** *ʔám* *b'ɔt-yɨ́ʔ-ɨ́y!*
1PL eat-DEP=tree 2SG chop.down-TEL-DYN
'You've chopped down the tree we eat from!'

This phenomenon of gradual 'headedness', as noted by Epps (2012: 210), is likely to be relevant for languages that use nominalization as relativization strategy, as is the occurrence of headless relative clauses in general. Indeed, if a predicate of a relative clause exhibits some features of a noun, it is expected that it will be able to function as a participant of the main clause on its own or by attaching some minor grammatical material. The problem that arises in such languages is that of distinguishing between headless relative clauses and various kinds of participant nominalizations, such as, for example, agent nominalization, patient nominalization, or locative nominalization (see Section 2.4 below). Since many languages with deranked relative clauses belong to this type, in order to avoid the problem in question, in the present study I will only consider the forms that can introduce headed relative constructions of the type illustrated in (21b), in which the head is explicitly expressed by a full nominal element, whether within the main clause (the relative clause in this case is referred to as *externally headed*), or within the relative clause itself (the relative clause is then labelled *internally headed*). The illustrations of both types of constructions can be taken from Imbabura Quechua, where a deranked relative clause can have either external head, cf. (22a), or internal head, cf. (22b):

(22) Imbabura Quechua (Quechuan; Ecuador; Cole 1985: 54, 55)

a. [*Juzi* *ri-ju-j*] ***llajta***
José go-PROG-NMZ town
'the town José is going to'

b. [*Juzi* ***llajta-man*** *ri-ju-shka*]*-ka* *maymi* *karu-mi* *ka-rka*
José town-to go-PROG-NMZ-TOP very big-VLD be-PST.3
'The town José was going to was very big.'

It should be noted that internally headed relative clauses are in general a fairly rare phenomenon (according to Dryer 2013, only 24 languages in the sample of 824 employ them as primary relativization strategy), and when it comes to participial relative clauses, they might be even more restricted. In the sample of 100 languages examined for the current study, I have not found a single language where internally headed participial relative clauses would be the primary strategy, and in the languages that allow them at all they tend to be subject to various semantic restrictions, or simply appear to be less frequent than other types of participial constructions, cf., for instance, Genetti et al. (2008: 128) on Tibeto-Burman languages.

c) Participle as the locus of subordination marking

The final important specification that needs to be done is that I will only take into consideration the forms that do not simply have the ability to serve as predicates of relative clauses, but actually can be the only means of signalling this type of subordination relation. What is implied here is that I do not regard as participles the non-finite predicates requiring other markers of subordination to let the clause function as an adnominal modifier. An example of the latter case comes from the Miya language, where relative clauses with non-finite predicates are obligatorily introduced by clause-initial relativizers agreeing in gender with the modified noun, cf. (23):

(23) Miya (West Chadic, Nigeria; Schuh 1998: 111)
mbə̀rgu [***bá*** ***pəráw***]
ram REL.M slaughtered.PTCP
'a slaughtered ram'

It can be noted though, that constructions of this kind can develop into genuine participial relative clauses, as it apparently happened in Armenian. According to Hewitt (1978), relative clauses of the type illustrated in (24), where a non-finite form co-occurs with the relative clause marker *or*, represent the transitional structure between fully finite relative clauses attested on earlier stages, which combined the relative clause marker with a participle accompanied by an auxiliary verb, and prenominal participial relative clauses employed in modern variants of Armenian, cf. (25):

(24) Classical Armenian (Indo-European > Armenian; Armenia; Thomson 1975: 71, as cited in Hewitt 1978: 128)
es *em* *haçn* *kendani* [***or*** *jerkniç* ***idž-eal***]
I am bread.the living which from.heaven descend-PTCP
'I am the living bread which has descended from heaven.'

(25) Modern Eastern Armenian (Indo-European > Armenian; Armenia; Dum-Tragut 2009: 211)
Sa [*lav* ***kardac'-ol***] *ašakert-n* *ē.*
DEM well read-PTCP.SUBJ pupil.NOM-the it.is
'This is the pupil who reads well.'

The languages excluded from the scope of the study by this specification, however, are not numerous, since, as predicted by Andrews (2007: 208–209), relative clause that demonstrate at least some degree of nominalization (which is characteristic of participial relatives clauses, cf. Chapters 4–6), tend to employ no relative pronouns or complementizers whatsoever.

This part of the definition appears to be slightly problematic in the case of Austronesian languages. In many of them, nominal modifiers, such as deictic elements, quantifiers, adjectives and relative clauses, are commonly connected to the head noun by special particles, or ligatures (Foley 1980: 171), cf. examples in (26) from Palauan, where the ligature *el*/*'l* is given in bold:

(26) Palauan (Palauan, Palau; Foley 1976: 15–16)

a. *tirikey* ***'l*** *ʔekebil*
those **LIG** girl
'those girls'

b. *betok* ***el*** *ʔad*
many **LIG** man
'many men'

c. *a* *odelekelek* ***el*** *bil-ek*
ART black **LIG** clothes-POSS.1SG
'my black clothes'

d. *a* [*mley* *ʔelʔang*] ***el*** *ʔad*
ART came today **LIG** man
'the man who came today'

If in the definition of participle we adhere to the requirement that participial form has to be the main locus of subordination, we cannot regard as participle any verb forms that have to be accompanied by a ligature, because it is at least partly the ligature that performs the subordinating function. On the other hand, if the ligature has to be used with any modifier of a noun, this restriction does not make much sense. Luckily, in a thorough study of the Austronesian noun phrase structure, Foley (1976) mentions only one language that uses ligature with participles, namely Palauan, examples from which were given above. Moreover, it is not at all clear from Foley's analysis whether the forms that he regards as participles do indeed have any clear differences from independent clause predicates. The reference grammar of Palauan by Josephs (1975) does not mention any participial forms at all. Therefore, I do not consider Palauan in this study.

In the only other Austronesian language with participles mentioned by Foley (1976), namely Wolio, the use of ligature is actually one of the differences between deranked and balanced relative clauses. Relative clauses introduced by participles do not require a linking particle, cf. (27a), while for finite relative clauses the use of it is obligatory, cf. (27b). Apart from that, participles have special prefixes, which finite verbs do not have, and do not take prefixes for concord with their subjects:

(27) Wolio (Austronesian > Celebic, Indonesia; Anceaux 1952: 41 as cited by Foley 1980: 192)

a. *rampe* [*i-tau-na* *mawa*]
flotsam PTCP.PASS-carry-3SG flood
'flotsam carried down by the flood'

b. *wakutuu* ***na*** [*a-umba-mo*]
time **LIG** 3SG-come-DEF
'the time he came'

To summarize the relationship between participles and relative clauses as comparative concepts, in the present study the label participle will only be used to refer to the forms that can introduce headed relative clauses (both restrictive and non-restrictive), and do not require any additional marking, such as relative pronouns or complementizers. So far it might have seemed that the notion of relative clause is not really necessary for the typological definition of participle, since it would suffice to simply refer to adnominal modification as the primary participial function. However, there are two substantial reasons why I choose to adhere to this concept. First, the domain of relativization is relatively well studied cross-linguistically, and the terminology is fairly established and abundant. Therefore, it is convenient to describe participles using the existing set of terms, and taking the recognized distinctions into account. Second, stating that participle can function as a predicate of a clause, though deranked, emphasizes its verbal properties and the ability to have verbal valency despite deranking. The connection of the participial form to the verb to whose paradigm it belongs is discussed in the next section.

2.3.2. Verb form

By stating that participle is a verb form, it is meant that a participle, in order to qualify as such, has to belong to the verbal paradigm. This statement, in turn, implies two things. First, the marker of participle clearly has to be an affix rather than a function word, which necessitates distinguishing morphological from phrasal expression. On the other hand, participles as an inflectional form have to be distinguished from derivational verbal adjectives and in some cases also from verbal nouns, hence we need to differentiate between inflection and derivation in general. Both distinctions are notoriously hard to formulate from a theoretical point of view. There are, however, several operational criteria that can be used in a cross-linguistic study like this one to make decisions regarding what should and what should not be taken into account.

a) Morphological vs. phrasal expression

In the present study, the contrast between morphological and phrasal expression is relevant for distinguishing between subordinating participial affixes affecting the categorical status of the relative clause predicate, and subordinating conjunctions functioning at the level of the clause as a whole. Generally, morphological and phrasal ways of encoding relativization are easy to distinguish, since relative pronouns and

complementizers tend to occupy clause-initial position, and they are rarely obligatorily in contact with the relative clause predicate. However, making the distinction can be problematic in the cases when the conjunction is attached to the predicate of the relative clause and looks like pertaining to the verb, while in fact it functions on the level of clause as a whole, just like a freestanding subordinating conjunction, cf. Cristofaro (2003: 58). This issue is discussed in detail in Fischer & van Lier (2011) in connection with different types of subordinate clauses in Cofán. It is shown by the authors that the two relative clause markers attested in Cofán, *='cho* and *-'su*, differ in their morphosyntactic status, although they seem to occur in similar positions. The element *='cho* is a subordinating conjunction, but it always appears cliticized to the relative clause predicate because it attaches to the last element of its based constituent, and subordinate clauses are obligatorily predicate-final, cf. (28a). The marker *-'su*, on the other hand, is a suffix forming a non-finite verb form that can be used for adnominal modification, cf. (28b). The differences between the two forms with regard to their status are twofold. First, *='cho* clauses can be marked for all verbal categories (although, as it can be seen from (28c), none of them are obligatory in Cofán, so it is not unusual for *='cho* to attach to a bare verb stem). On the contrary, in *-'su* clauses none of the verbal inflectional categories expressed in independent clauses can be expressed. Second, *='cho* fulfills the phonological criteria for clitichood in Cofán (in particular, it does not alter the stress of its host word), while *-'su* in this respect is rather a suffix.

(28) Cofán (Cofán; Ecuador; Fischer & van Lier 2011: 235–242)

a. [*yori-'ye* [*ke'i* *su-je*]**='cho**=*ja*]
   Yori-NOMPST you.all say-IPFV=SR=DEF
   'the late Yori you are talking about'

b. [*ingi=ma* *atesian-**'su***] *pushe'su*
   we=ACC teach-PTCP woman
   'the woman that teaches us' (=our teacher)

c. [[*ke* *kanse*]**='cho** *ande*]=*nga=tsu* *napi-ya*
   you live=SR land=DAT=DISC.3 arrive-IRR
   '(It) will reach the country you live in.'

As shown in Haspelmath (2011), the borderline between morphological and phrasal expression in general is not possible to draw in a coherent way across languages, since none of the criteria that have been employed by linguists so far are uniformly applicable across contexts and languages, and where they are applicable, they do not always converge. For this reason, in the current study I prefer to keep the distinction language specific, stating that a participial marker in any language of the sample has to fulfill the criteria for being an affix in this particular language (in this case, I rely on the analysis provided by the authors of language descriptions). It is, however, important to emphasize that I only consider forms that have some sort of formal marking that distinguishes them from the predicates of independent clauses.

It should also be noted that although most languages that are known to have participles are predominantly or strictly suffixing, such as Indo-European languages, Uralic, Turkic, Mongolic, Tungusic or Dravidian, there are also languages in which participial markers

belong to other positional types of affixes. For example, prefixal participial forms are attested in Georgian, cf. (29), Tariana, cf. (30), and Kalapuya, cf. (31), whereas Muna exhibits, among other options, circumfixal marking in deranked relative clauses, cf. (32):

(29) Georgian (Kartvelian; Georgia; Hewitt 1995: 540)
[*bavšv-is-tvis* *pul-is* ***mi-m-c-em-i***] *kal-i*
child-GEN-for money-GEN PREV-PTCP.PRS-give-TS-AGR woman-NOM
'the woman giving money to the child'

(30) Tariana (Inland Northern Arawakan; Brazil; Aikhenvald 2003: 542)
[*diha* *hiwaru-pukwi* ***ka-de***] *kuphe-nuku* *di-ka*
ART gold-CL:HOLLOW REL-have fish-TOP.NON.A/S 3SG.NONF-see
di-anhi-pidana
3SG.NONF-know-REM.RPTD
'(The cat) recognized the fish who had the golden ring.'

(31) Santiam Kalapuya (Kalapuyan; United States; Banks 2007: 50)
lauʾmdɛ guš *an-ʾuihi* [***gi-ʾwai-ni*** *guš* *aʾ-waiʾwa*]
then DIST ART-man INF-lie-3.OBJ DIST ART-woman
d-ɛ-m-wu·ʾ-yωʾ-q
HAB-IRR-FIN-get-INCH-PASS
'And then the man who had had sexual intercourse with the woman was fetched.'

(32) Muna (Austronesian > Celebic; Indonesia; van den Berg 2013: 232)
ana-no [***mo-saki-no***] *naando* *ne-ndo-ndole*
child-his PTCP.ACT-sick-PTCP.ACT be 3SG.REAL-INT~lie
'His sick child was still lying down.'

Moreover, some languages feature forms that can be classified as periphrastic participles, i.e. those consisting of a lexical verb in a certain form and a participial form of an auxiliary. For instance, in Nanga, the perfective participial suffix *-sɛ̀*, which normally attaches to lexical verb stems, cf. (33a), can also attach to the experiential perfect auxiliary *tá:-* preceded by the bare stem of the lexical verb, cf. (33b):

(33) Nanga (Dogon, Mali; Heath, ms.: 287, 273)
a. [*àrⁿà* *bǎ:* *nɔ̀* ***ǹnè-sɛ̀*** *nɛ́*]
man.L father 3SG.POSS go-PTCP.PFV.L DEF.AN.SG
'the man whose father has gone'
b. [*yà:* *ìsè* *gó* ***ńné*** ***tá:-sɛ̀***]
woman.L village.L in go PRF.EXP-PTCP.PFV
'a woman who has (ever) gone to the village'

Other examples of such forms are attested, for instance, in Krongo (Kadugli-Krongo > Kadugli; Sudan) and Russian (Indo-European > Slavic; Russia), even though in the latter they are very marginal. In these languages, auxiliaries take participial markers to refer to future events in non-finite relative clauses. In Krongo, the periphrastic future participle consist of a future auxiliary in the participial form and an infinitive of a lexical verb in the locative form, e.g. *ŋ-ákká k-áadìyà* CONN.M-FUT LOC-come.INF 'the one who will come'

(Reh 1985: 253). In Russian, it is formed by a participle of the verb *byt'* 'to be' and an infinitive of a lexical verb, e.g. *budu-šč-ij sid-et'* be.FUT-PTCP.PRS-NOM.SG.M sit-INF 'the one who will be sitting' (Krapivina 2008: 8–9). In both cases, this formation is parallel to the formation of main clause future forms.

It does not matter either whether the formation of a participle involves a particular segmental morpheme or not. For instance, in Margi (Biu-Mandara, Nigeria; Hoffmann 1963: 160–166), participles[7] are formed by complete or partial reduplication, e.g. *pìdà* 'to lie down' > *pìdàpìdà* 'lying down', *dzàgà* 'to puncture' > *dzàdzàgà* 'punctured'. Reduplication is also employed for the formation of participles in Kharia, cf. (34):

(34) Kharia (Austro-Asiatic > Munda; India; Peterson 2011: 413)
a. [*iŋ=te* ***yo~yo***] *lebu*
1SG=OBL **see~PTCP** person
'the person who saw/sees/will see me'
b. [*iŋ=aʔ* *dura=te* ***ruʔ~ruʔ***] *kuŋji*
1sg=GEN door=OBL **open~PTCP** key
'the key I opened/open/will open the door with'

In Kambaata (Afro-Asiatic > Highland East Cushitic; Ethiopia; Treis 2008: 165–168), affirmative relative verbs are primarily marked by the final accent as opposed to main verbs, in which the accent is always located in a non-final position, compare the independent sentence in (35a) and the relative construction in (35b):

(35) Kambaata (Afro-Asiatic > Highland East Cushitic; Ethiopia; Treis 2008: 167)
a. *adab-óo* ***xúujj-o-se***
boy-M.NOM see-3M.PFV-3F.OBJ
'The boy saw her.'
b. [***xuujj-o-sé***] *adab-áa*
see-3M.PFV-3F.OBJ.REL boy-M.ACC
'the boy who saw her'

The important thing for the comparative concept in question is, therefore, that the participial status and morphosyntactic deranking of given forms are not manifested exclusively in their distribution or their ability to attach certain morphological material (this approach to finiteness referred to as constructional will be briefly discussed in Section 2.3.3).

[7] These Margi forms are not included in the sample used for this study, since it is not clear from Hoffmann's grammar if they can take verbal dependents, such as, for example, temporal or locative adverbials, which has been introduced as one of the defining features of participles in 2.3.1. According to Hoffmann (1963: 166), participles formed by reduplication are also attested in some languages related to Margi, e.g. Bura, Pabir, Cibak, and Kilba, but I was not able to find sufficient information on them either.

b) Inflection vs. derivation

The problem of distinguishing between participles and verbal adjectives/verbal nouns is, as mentioned above, a part of the larger problem of distinguishing between inflection and derivation. This issue has been discussed in numerous books in typology, and many authors have suggested various criteria relevant for the distinction, cf. Bybee (1985), Plank (1991), Payne (1997), among others. Most linguists, however, tend to agree that instead of a binary contrast, it is more reasonable to speak of the inflection-derivation continuum, cf. Bybee (1985), Corbett (1987), Plank (1994), or even a multidimensional space, cf. Spencer (2013), see also Haspelmath (1994: 152) where this issue is discussed specifically in relation to participles and verbal adjectives. Nevertheless, if we need to define a range of forms that we are going to regard as participles, we can use some of the earlier proposed criteria to distinguish them from words formed by means of derivation. In this section, I will only focus on verbal adjectives, since this is the topic that has received most attention in this respect. Deverbal adnominal modifiers that can be classified as nouns are treated in some detail in Section 2.4, and the same criteria as discussed here are relevant for them as well.

It should be noted in the very beginning that one of the most commonly mentioned criteria in the polemics about the differences between inflection and derivation is that derivational morphemes can change the word class of the stem they attach to, while inflectional morphemes cannot, cf. Langacker (1972: 75), Scalise (1988: 562), Payne (1997: 25), among others. As it can already be seen from the discussion above, I do not recognize this property as defining for the distinction. Haspelmath (1996) has convincingly shown that it is reasonable to admit the existence of such thing as word-class-changing inflectional morphology, and participial affixes fit neatly into this type. Apart from inability to change the word class of the stem, Haspelmath & Sims (2010: 90) propose a list of other properties that can differentiate inflection and derivation. Here is a brief overview of the two commonly recognized properties that appear to be most relevant for the difference between participles and verbal adjectives, and can, therefore, be used as criteria for distinction:

1) Participles are *general* (i.e. they can be formed from all or almost all verbs in a given language), while verbal adjectives are not. For instance, in Garo, suffix *-a* can be used to transform a verb into an adnominal modifier, but its compatibility is restricted to stative verbs denoting qualities, such as 'to be big', cf. (36a). As shown in (36b), this suffix does not combine with non-stative verbs, such as 'to run', and in order to form an adnominal modifier from such verbs, an alternative fully productive suffix *-gipa*, which can attach to any kind of verbs, has to be employed, cf. (36c) and (36d). The adnominal modifier formed with *-gipa* is thus considered participial, while the *-a* form is considered a verbal adjective.

(36) Garo (Sino-Tibetan > Bodo-Garo; India; Burling 2004: 135–136)
a. *Ang-a* ***dal·-a*** *ma·su-ko* *nik-a.*
I-NOM big-ADJR cow-ACC see-NEUT
'I see the big cow.'

b. **Ang-a* ***kat-a*** *ma·su-ko* *nik-a.*
I-NOM run-ADJ cow-ACC see-NEUT
'I see the running cow.'
c. [*Ang-a* ***dal·-gipa***] *ma·su-ko* *nik-a.*
I-NOM big-NMZ cow-ACC see-NEUT
'I see the cow that is big.'
d. [*Ang-a* ***kat-gipa***] *ma·su-ko* *nik-a.*
I-NOM run-NMZ cow-ACC see-NEUT
'I see the running cow.'

2) Participles are *regular* (i.e. the meaning of participles is derived from the meaning of the corresponding verbal stems in a straightforward way), while verbal adjectives can have idiosyncratic semantic connections with the verbs. This criterion is very important for the category of *pseudoparticiples* introduced by Plungian (2010) for Russian. The label was proposed for the forms that are diachronically participial, but have developed certain morphological, syntactic and/or semantic properties that allow to classify them as lexicalized adjectives. For example, possible semantic augmentations of the *-uč-*/*-ač-* pseudoparticiples include 'the one which is constantly X-ing', e.g. *viset'* 'to hang' — *visjačij* 'the one which is constantly hanging'; 'the one which is constantly X-ing intensively', e.g. *paxnut'* 'smell' — *paxučij* 'the one which constantly has an intensive smell'; 'the one that can X a lot', e.g. *pisat'* 'write' — *pisučij* 'the one that can write a lot', and some others. The meaning introduced to the verb by a prototypical participial affix is usually simpler than those exemplified above, and it is roughly the same for all the verbs, which is clearly not the case for pseudoparticiples in Russian, as well as for other verbal adjectives in the world's languages.

All that being said, distinguishing between participles and verbal adjectives can still be problematic, and an individual decision has to be made for every particular language. Therefore, in order not to leave out any forms that might be relevant for this study, in unclear cases, when little evidence is available regarding the status of specific forms, I will rather include them in the scope of consideration.

2.3.3. Deranking

Finally, the comparative concept of participle proposed in this study is based on the opposition between *balancing* and *deranking* introduced by Stassen (1985: 76–83), which is commonly used for distinguishing between two types of constructions containing subordinate clauses. In *balanced constructions* the predicates of both the main and the subordinate clause are structurally the same, while in *deranked constructions* the predicate of the subordinate clause exhibits structural difference from the main clause predicate, compare examples (1) and (3) discussed in the introductory chapter. Different authors have understood this opposition in slightly different ways, cf., for instance, Koptjevskaja-Tamm (1993: 23–24), Cristofaro (2003: 57), and van Lier (2009: 87). In the present study, I adopt van Lier's (2009) version of the distinction, which requires deranked forms in a

given language to exhibit certain deviation in their behavioural potential from the prototypical predicate of an independent clause in this language. This deviation can be manifested in restrictions imposed on verbal morphological categories or total loss thereof, acquisition of nominal morphological categories, or change in the encoding of various dependents (all these features in connection to participial relative clauses will be discussed in detail in Chapters 4–6). This requirement is meant to exclude the forms like so-called dependent moods and subjunctives in languages such as West Greenlandic (Fortescue 1984) and Abkhaz (Hewitt 1987), which follow the independent clause pattern in subject encoding and have the same or almost the same range of verbal categories as independent clause predicates, but express them by means of a special dependent paradigm.

It is important to emphasize once again (see also the discussion in Section 2.3.2 above) that in accordance with the original Stassen's formulation of the balancing-deranking distinction (1985: 80), in this study I only take into account the verb forms that bear explicit subordinate marking that makes them formally distinct from the prototypical predicates of independent sentences[8]. This means that I do not include into the scope of consideration the cases of *unmarked relative subordination* discussed in detail in Lander (2014). This label is used for the situations when a relative clause does not have any overt marking of its subordinate status, neither within the predicate nor by means of any other markers. In some languages, however, these constructions demonstrate significant structural differences if compared to independent sentences, although formally the subordinate clause predicate is identical to the predicate of a regular independent clause. For example, in Udi, the *-i* form can function as a predicate of both independent and dependent clauses, but it is only in the latter case that it can attach subject agreement markers, compare (37a) and (37b) below. In addition to that, unmarked relative clauses in Udi differ from independent clauses in the rigidness of their word order, number of available temporal distinctions, and expression of negation, cf. Lander (2008) for details.

(37) Udi (Lezgic, Azerbaijan; Lander 2008: 60, 63)

a. [*zu* *iz* *bož* ***arc-i***] *aft:obus*
I POSS.REFL inside sit-*i* bus
'the bus which I entered'

b. *šähär-e* ***cir-i=z***
city-DAT go.down-*i*=1SG
'In the city I went out (of the car).'

A very similar situation can be observed in another Nakh-Daghestanian language, Akhvakh. The perfective form *-ada* can be used both as a predicate of an unmarked relative clause, cf. (38a), and as a predicate of an independent sentence, cf. (38b). The difference is, however, that in relative clauses it is the only way to express perfective

[8] I refer to *prototypical* predicates of independent sentences here as opposed to the relatively rare cases when morphosyntactically clearly deranked forms function as predicates in independent sentences. As shown by Kalinina (2001), such uses are commonly limited by certain pragmatically marked contexts, see also Evans (2007) on the notion of *insubordination*.

meaning (hence it is glossed here as PTCP.PFV 'perfective participle'[9]), while in independent clauses, *-ada* implies a 1st person A/S argument in declarative clauses and a 2nd person A/S argument in questions (hence it is glossed as PFV.ASSINV 'perfective & assertor's involvement'). If this condition is not met, perfective in independent sentences is marked by the suffix *-ari*, compare (38b) and (38c):

(38) Akhvakh (Avar-Andic-Tsezic, Russia; Creissels 2010: 125)

a. *di-ƛa* *harigw-iƛa* [*lãga* ***r-eχ-ada***] *ek'wa*
1SG.O-DAT see-PFV.NEG sheep.PL N.PL-buy-PTCP.PFV man
'I did not see the man who bought sheep.'

b. *de-de* *lãga* ***r-eχ-ada***
1SG-ERG sheep.PL N.PL-buy-PFV.ASSINV
'I bought sheep.'

c. *ek'wa-s̲w-e* *lãga* ***r-eχ-ari***
man-O.M-ERG sheep.PL N.PL-buy-PFV
'The man bought sheep.'

The pattern of relativization demonstrated by Akhvakh is used by Creissels (2009) as an argument in favour of the constructional approach to finiteness, according to which finiteness is a feature of predicative constructions not necessarily correlated in a simple way with the morphological structure of the verb forms involved. As Creissels (2009: 128–129) himself states, constructional approach to finiteness may result in the situation that necessitates positing the notion of participial clause (defined in constructional terms) as logically anterior to the notion of participial form. However, in this study, I am primarily interested in cross-linguistic functioning of forms exhibiting certain morphosyntactic properties rather than in a certain type of clauses. Therefore, I will only take overtly marked morphosyntactically deranked verb forms into account, and not unmarked predicates of constructionally defined non-finite clauses, which is proposed by Creissels.

2.4. Participles and nominalizations

As stated already in the introduction, in this study participle is defined as a morphosyntactically deranked verb form that can be employed for adnominal modification. However, as it has been many times noted by typologists, it is very common for non-finite forms that can function as adnominal modifiers to be able to have other syntactic functions as well, especially that of a verbal argument, cf. Koptjevskaja-Tamm (1993: 42–44), Serdobolskaya & Paperno (2006), Shibatani (2009), among others. In other words, many languages do not distinguish between participles and nominalizations. This fact has been particularly widely discussed for Uralic and Altaic languages, cf. examples

[9] The verb forms in Udi functioning as predicates of relative clauses are also often referred to as participles, cf. Harris (2002), Maisak (2008).

from Komi-Zyrian, cf. (39), and Yakut, cf. (40), where constructions in (a) illustrate adnominal modification, while examples in (b) show the same form as a predicate of a complement clause:

(39) Komi-Zyrian (Uralic > Permic; Russia; Serdobolskaya & Paperno 2006: 1)
a. [*mama-liʃʲ* ***vur-əm***] *dərəm* *me* *koʃʲal-i.*
mother-GEN$_2$ sew-PTCP shirt I tear-PST
'I've torn the shirt mother gave.'
b. [*mama-lən* *dərəm* ***vur-əm***] *menɨm* *kaʒitʧʲ̄-ə.*
mother-GEN$_1$ shirt sew-NMZ I.DAT like-PRS.3
'I like the way mother has sewn the shirt.'

(40) Yakut (Turkic, Russia; Ubrjatova 1976: 143 and Čeremisina 1995: 222 as cited in Kalinina 2001: 66)
a. [*ikki* *ojoγ-o* ***öl-büt***] *kïrdjaγas*
two wife-POSS.3SG die-PTCP.PRF old.man
'the old man whose two wives died'
b. [*Narïja* ***sïraj-büt-a***] *billi-bet-Ø*
Nariya get.tired-PTCP.PRF-POSS.3SG not.see-PTCP.PRF-3SG
'It could not be seen that Nariya got tired.'

The examples provided above are instances of participle/action (event) nominalization polysemy, but in many languages the syncretism of participles and argument (participant) nominalizations is also attested. Illustrations for this type of situation can be provided by Tibeto-Burman languages, which in general are also well known for exhibiting this kind of polysemy, cf. Matisoff (1972), DeLancey (1999, 2002), Genetti et al. (2008), and many others. For instance in Chantyal, the marker *-wa* is used to create forms that can be classified as participles, cf. (41a), action nominalizations, cf. (41b), or argument nominalizations, cf. (41c), based on the functions they can perform:

(41) Chantyal (Bodic, Nepal; Noonan 1997: 375–377)
a. [*gay-ye* *sya* ***ca-si-wa***] *mənchi*
cow-GEN meat eat-ANT-NMZ person
'the person who ate beef'
b. [*nɦi-i* *tɦem-əŋ* *pali-ri* *mi* ***phur-si-wa*** *puttə*
we-GEN house-LOC veranda-LOC fire blow-ANT-NMZ smoke+rising
dɦwãl ***wurə-wa***] *mãra-i*
smoke fly-NMZ see-PFV
'we saw a fire set and smoke rising on the veranda of our house'
c. *na-sə* [*capa* ***ca-wa-ra***] *kwi* *pin-ji*
I-ERG meal eat-NMZ-DAT water give-PFV
'I gave water to the one who was eating'

Typologists generally approach the forms exhibiting participle/nominalization polysemy from two different points of view. The first option is to state that argument function is primary for them, and, therefore, they should be treated as nominalizations. In

this case, the use of these forms for adnominal modification should be explained as an extension of the primary nominal function. This approach is represented, for instance, in Givón (2012). Comrie & Thompson (2007) propose the following mechanism, cf. (42):

(42) "It is not difficult to understand how a nominalization can function as a relative clause: the nominalization and the noun with which it is in construction can be thought of as two juxtaposed nominal elements [nom] [nom], the modifying relationship between them being inferred by the language users (rather than being specified by the grammar, as it is in languages with specific relative clause morphology), just as the modifying relationship is inferred in a noun–noun compound such as *tree-house*, in which the two nominal elements simply happen to be single nouns". (Comrie & Thompson 2007: 378)

The second option is to regard the function of adnominal modification as primary, and thus treat such forms as participles. If we accept this viewpoint, the use of these forms as arguments should be described as the formation of headless relative clauses. The participle is, therefore, regarded as contextually substantivized, and in this way it acquires the ability to function as an argument. This approach is presented in many traditional descriptions of individual languages, cf., for instance, Pengitov (1951) on Mari (Uralic > Mari; Russia), Sat (1980) on Tuvan (Turkic; Russia), and Sunik (1947) on Tungusic languages.

In this dissertation, I prefer not to adopt any of the outlined approaches. If the choice between them had to be made, it would be most reasonable to base it on the primary function of the investigated forms in every particular language. Most descriptive grammars, however, do not provide any information concerning the synchronically primary, or most frequent, function of forms demonstrating participle/nominalization polysemy, or any diachronic evidence based on which the decision concerning their original function could have been done. An additional argument in favour of this decision is that argument clauses and relative clauses introduced by one and the same form are usually identical with respect to their structure and the morphosyntactic properties of their predicate. Therefore, if we simply accept the synctretism and approach the forms in general, in most cases it is possible to use evidence from all kinds of subordinate clauses introduced by these forms. A rare example of an exception is provided by Permic languages, where the subject of a non-finite relative clause predicate can be encoded by either genitive/nominative case or instrumental case, while for complement clauses with the same predicate genitive/nominative is the only option (Serdobolskaya 2005: 23). Some other peculiarities in argument encoding demonstrated by deranked relative clauses in comparison to deranked complement clauses will be further addressed in Chapter 6. Finally, in some cases it is simply impossible to tell apart the cases where a participle introduces a relative clause and the cases where a participle is a predicate of a complement clause, cf. example (43) from Pitta Pitta:

(43) Pitta Pitta (Pama-Nyungan > Central Pama-Nyungan, Australia; Blake 1979: 217)[10]

ɲatʸi-ka	*ŋa-ɟu*	*i-ɲa-ka*	*piyawaḷi-ɲa*	[*patʸa-ka-ɲa*	*ṭakuku-ɲa*]
see-PST	I-ERG	he-ACC-HERE	dog-ACC	bite-PST-ACC	child-ACC

'I saw the dog (that) bite the child.'

In sum, in the current study I am not going to propose any way of distinguishing between participles and nominalizations, but rather investigate all kinds of relative clauses introduced by either strictly participial forms or forms demonstrating the participle/nominalization syncretism discussed above. All the restrictions imposed on prototypical participles that were discussed in previous sections apply to the forms labeled as nominalizations in individual languages.

2.5. Infinitival relative clauses

In the previous section, I have shown that relative clauses classified as participial in the present study can be introduced by forms that bear different labels in individual languages. There is, however, one specific type of non-finite relative clauses which I systematically exclude from the study, namely infinitival relative clauses. Numerous studies have shown that defining the infinitive as a cross-linguistically valid category is an extremely problematic task, cf. Haspelmath (1989), Koptjevskaja-Tamm (1993: 33–42), Ylikoski (2003). It is evident, for instance, that the definition cannot be based solely on their function, since forms traditionally classified as infinitives share the function of denoting an argument with action nominals, see Table 1 in Section 1.2.

Koptjevskaja-Tamm (1993) suggests that infinitives differ from action nominals in that the verb in the infinitival form does not change its word class (verb > noun), it cannot form a constituent with the subject, its relations with the direct object are the same as in the indicative form, and the range of nominal inflectional categories is necessarily reduced, if at all available. There is, however, one more very important feature of infinitives which is discussed in great detail by Haspelmath (1989), namely their close connection to purposive constructions. Arguably, this connection is also present in the constructions where infinitives are used for adnominal modification, see examples in from English:

(44) a. *He bought this book **to read** it in the train.*
(Infinitival purpose construction)
b. *He bought a book* [***to read** in the train*].
(Infinitival relative clause)

[10] In the examples from Pitta Pitta, I have preserved the original glosses used in Blake (1979), where the suffix *-ka-* is glossed as PST 'past tense' regardless the function it has in a particular context. However, Blake himself notes that the connection of *-ka-* used to introduce dependent clauses and *-ka-* as a past tense marker is diachronical, cf. Blake (1979: 219).

Lehmann (1984: 157–159) notes that there is not much knowledge about infinitival relative clauses, with the exception of English and Italian, and even after 30 years this statement is still true to a large extent. Constructions of this type are, however, attested in a number of typologically and geographically diverse languages, see examples (45a) and (45b) from Ingush (example (45c) representing a participial relative clause is given for comparison), and examples (46a) and (46b) for Tamil:

(45) Ingush (Nakh-Daghestanian > Nakh; Russia; Nichols 2011: 594)

a. *Aaz* *cynna* [__ __ ***diesha***] *kinashjka* *iicar*
1SG.ERG 3SG.DAT ERG NOM D.read.INF book bought
'I bought him a book to read.'

b. [__ __ ***mala***] *xii*
ERG NOM drink.INF water
'water to drink'

c. [__ __ ***mola***] *xii*
ERG NOM drink.PTCP water
'drinking water, water that is drunk, water that people drink'

(46) Tamil (Southern Dravidian; India; Lehmann 1993: 262)

a. [*naaval* ***paṭi·kk-a***] *neeram* *kumaar-ukku* *ippootu* *kiṭai-tt-atu*
novel **read-INF** time Kumar-DAT now get-PST-3SG.N
'Now Kumar has got time to read novels.'

b. [***kuṭiyiru·kk-a***] *vacati·y-aaṉa* *viiṭu* *aṅkee* *iru-kkiṟ-atu*
live-INF comfort-ADJ house there be-PRS-3SG.N
'There are comfortable houses to live in.'

As can be seen from the examples above, all of these relative clauses, in addition to modifying the noun, convey the meaning of purpose. This is a significant augmentation in semantics that restricts considerably the number of contexts in which the use of such relative clauses is possible. Therefore, infinitival relative clauses do not fall into the scope of this study and will further be disregarded. Importantly, these constructions are usually described separately from other non-finite relative clauses in grammars, which facilitates their identification in the languages of the sample.

2.6. Summary, conclusions and the core sample

In the present chapter, I have given a brief overview of traditional definitions of participles. I have shown that many of these definitions appear to be extremely broad, which presumably can be explained by the polyfunctionality of the forms used for adnominal modification, especially in the languages that most influenced the European linguistic tradition. I have further shown that the narrower definition which takes the notion of adjective as a starting point also turns out to be fairly problematic. Although it works perfectly for the languages with primary adjectives, it fails to embrace some

relevant verb forms in languages that lack them, for instance in languages with verb-like adjectives, such as West Greenlandic, Seri, and Garo.

Instead of traditional definitions of participle, I have proposed to create a comparative concept, which would allow to study the similarities and differences of the forms that are functionally and structurally close to each other in all kinds of typolofically diverse languages. The proposed concept of participle is based on the following features of the form:

a) ability to introduce a headed *relative clause*, while being itself the locus of subordination marking;

b) pertaining to the *verbal paradigm*, i.e. being formed by morphological rather than syntactic means, and at the same time demonstrating enough regularity and generality to qualify as inflection rather than derivation;

c) being *morphosyntactically deranked*, i.e. demonstrating certain morphosyntactic deviation from the prototypical predicate of an independent sentence in a given language.

I have further shown that typologically it is extremely common that verb forms used for adnominal modification, i.e. qualifying as participles in this study, also function as arguments, and therefore receive the label 'nominalization' in the descriptions of individual languages. I argue that although in an in-depth analysis of a particular language it might be valuable to determine the primary function of the forms demonstrating such syncretism, for a typological study like this one it is more reasonable to consider these forms as participial and hence investigate them together with the other participial forms. However, I exclude infinitival relative clauses from my study, because of the considerable semantic augmentation they demonstrate.

Using the comparative concept of participle discussed above, we can now draw up the final sample that will be used in this dissertation, containing all the languages that have forms qualifying as participles and for which enough data is available. This sample is provided in the Table 2 below and represented on the map in Figure 2. The languages in the table are organized both geographically (according to macroareas) and genealogically (according to language families and genera). The sources of information on all the languages, as well as the countries where the languages are spoken, are listed in Appendix 1a. The list of languages that have been investigated, but appeared to lack participial forms as defined in the current study is provided in Appendix 1c. Appendix 3b lists the sources of information on these languages. Of course, a question of why some languages have this kind of structures and some do not is very interesting in its own right. However, it is outside the scope of the current research.

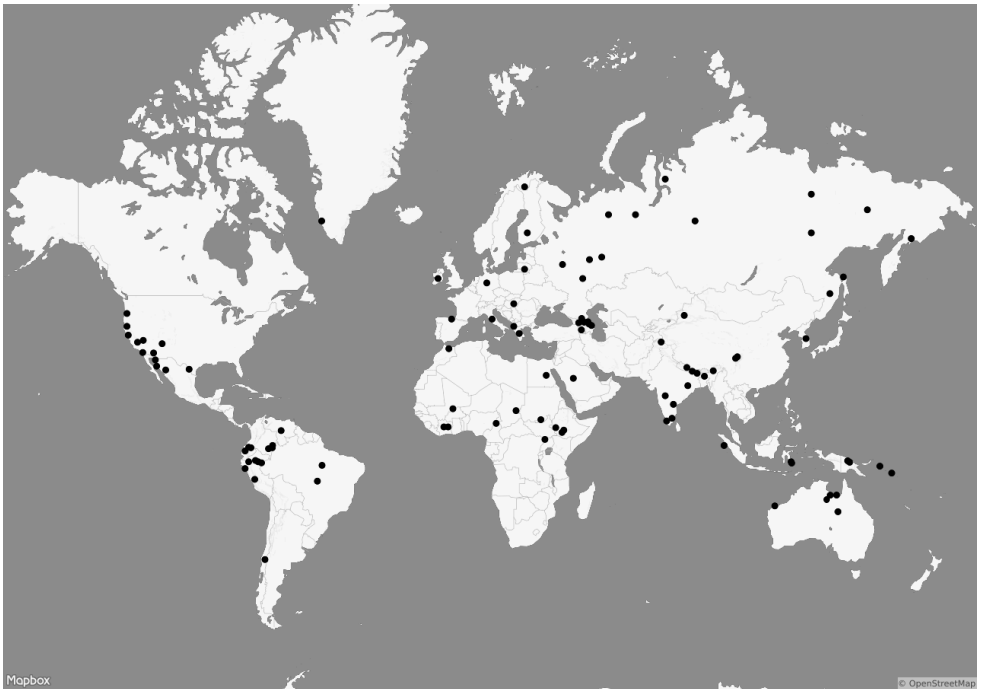


Figure 2. Core sample

Table 2. Languages with participles by genealogical groups and macroareas

FAMILY	GENUS	LANGUAGE
AUSTRALIA (5)		
Garrwan	Garrwan	Garrwa
Mirndi	Wambayan	Wambaya
Pama-Nyungan	Western Pama-Nyungan	Martuthunira
	Central Pama-Nyungan	Pitta Pitta
Tangkic	Tangkic	Kayardild
PAPUNESIA (7)		
Austronesian	Celebic	Muna, Wolio
	Northwest Sumatra-Barrier Islands	Nias
East Bougainville	East Bougainville	Motuna
Lower Sepik-Ramu	Lower Sepik	Yimas
Savosavo	Savosavo	Savosavo
Nuclear Trans New Guinea	Madang	Kobon

NORTH AMERICA (13)

Chimariko	Chimariko	Chimariko
Coahuiltecan	Coahuiltecan	Coahuilteco
Cochimi-Yuman	Yuman	Maricopa
Eskimo-Aleut	Eskimo	West Greenlandic
Kalapuyan	Kalapuyan	Santiam Kalapuya
Yokutsan	Yokuts	Wikchamni
Seri	Seri	Seri
Uto-Aztecan	Hopi	Hopi
	Numic	Tümpisa Shoshone
	California Uto-Aztecan	Luiseño
	Tarahumaran	Warihio
	Tepiman	Nevome
Yuki-Wappo	Wappo	Wappo

SOUTH AMERICA (16)

Araucanian	Araucanian	Mapudungun
Arawakan	Inland Northern Arawakan	Tariana
Barbacoan	Barbacoan	Tsafiki
Cariban	Cariban	Panare
Mochica	Mochica	Mochica
Cofán	Cofán	Cofán
Jivaroan	Jivaroan	Aguaruna
Nuclear-Macro-Ge	Ge-Kaingang	Mẽbengokre
Nadahup	Nadahup	Hup
Pano-Tacanan	Panoan	Matsés
Quechuan	Quechuan	Imbabura Quechua, Tarma Quechua
Tucanoan	Tucanoan	Barasano
Tupian	Tupí-Guaraní	Kamaiurá
		Kokama-Kokamilla
Urarina	Urarina	Urarina

AFRICA (12)

Afro-Asiatic	Berber	Rif Berber
	Egyptian-Coptic	Middle Egyptian
	Highland East Cushitic	Kambaata
	North Omotic	Koorete, Sheko
Atlantic-Congo	North Atlantic	Fula
Central Sudanic	Moru-Ma'di	Ma'di
Dogon	Dogon	Nanga
Kadugli-Krongo	Kadugli	Krongo
Maban	Maban	Maba
Mande	Eastern Mande	Beng
		Wan

EURASIA (47)

Afro-Asiatic	Semitic	Modern Standard Arabic
Austro-Asiatic	Munda	Kharia
Basque	Basque	Basque
Burushaski	Burushaski	Burushaski
Chukotko-Kamchatkan	Northern Chukotko-Kamchatkan	Koryak
Dravidian	South-Central Dravidian	Telugu
	Southern Dravidian	Malayalam, Tamil
Indo-European	Albanian	Albanian
	Armenian	Armenian
	Baltic	Lithuanian
	Celtic	Irish
	Germanic	German
	Greek	Modern Greek
	Indic	Marathi
	Iranian	Apsheron Tat
	Romance	Italian
	Slavic	Russian
Kartvelian	Kartvelian	Georgian
Koreanic	Korean	Korean
Mongolic	Mongolic	Kalmyk
Nakh-Daghestanian	Avar-Andic-Tsezic	Hinuq
	Dargwa	Tanti Dargwa
	Lezgic	Lezgian
	Nakh	Ingush
Nivkh	Nivkh	Nivkh
Sino-Tibetan	Bodic	Manange
	Bodo-Garo	Garo
	Dhimalic	Dhimal
	Mahakiranti	Dolakha Newar
	Qiangic	Qiang
	rGyalrongic	Japhug rGyalrong
	Tani	Apatani
Turkic	Turkic	Sakha
Tungusic	Tungusic	Even, Nanai
Uralic	Finnic	Finnish
	Mari	Meadow Mari
	Mordvin	Erzya
	Permic	Beserm. Udmurt, Komi-Zyrian
	Saami	North Saami
	Samoyedic	Tundra Nenets
	Ugric	Hungarian, Northern Khanty
Yeniseian	Yeniseian	Ket
Yukaghir	Yukaghir	Kolyma Yukaghir

3. Participial orientation

3.1. Introduction

The notion of *orientation* was introduced to the typology of participles by Haspelmath (1994: 153) in order to describe different possible relations between the participle, which is a verb form, and the nominal it modifies, which is a participant of the verb to whose paradigm the participle belongs[11]. Indeed, the transitive German verb *fangen* 'catch' has at least two participants, the agent and the patient, and each of the two participles that can be formed from this verb are oriented towards one of the participants. The noun modified by the active participle is understood to be the agent, cf. (47a), whereas the noun modified by the passive participle is understood to be the patient, cf. (47b):

(47) German (Indo-European > Germanic; Germany; personal knowledge)
a. *die* [*Mäuse* ***fang-end-e***] Katze
DEF.F.NOM.SG mouse.PL catch-PTCP.ACT-DEF.F.NOM.SG cat(F)
'the cat who cathes mice'
b. *die* [*von der Katze* ***ge-fang-en-e***]
DEF.NOM.PL by DEF.F.DAT.SG cat(F) PTCP.PASS-catch-PTCP.PASS-DEF.NOM.PL
Mäuse
mouse.PL
'the mice caught by the cat'

Both active and passive participles are instances of *inherently oriented* participles, which means that each form can be used to modify only one particular participant of the verb. Such forms are common in most European languages, e.g. also in English, Russian, or Finnish. On the other hand, many languages are able to employ one and the same participial form for relativizing several participants of the verb. Participles of this kind are referred to as *contextually oriented*, and they are shown to be the dominant type in the languages of Siberia and beyond, cf. Pakendorf (2012), Shagal (2016). Haspelmath exemplifies the functioning of a contextually oriented participle by several constructions from Lezgian, where the imperfective participle *kx̂izwaj* can be oriented towards the agent, cf. (48a), towards the patient, cf. (48b), or towards peripheral participants, cf (48c)–(48d):

(48) Lezgian (Nakh-Daghestanian > Lezgic; Russia Haspelmath 1994: 154)
a. [*čar* ***kx̂i-zwa-j***] *ruš*
letter.ABS write-IPFV-PTCP girl
'the girl who is writing a letter'

[11] Haspelmath himself refers to Lehmann (1984: 152) as the source of this term, although Lehmann only uses this notion (*Ausrichtung*) in connection with verbal nouns.

b. [*ruš-a* ***kx̂i-zwa-j***] *čar*
girl-ERG write- IPFV-PTCP letter.ABS
'the letter which the girl is writing'

c. [*ruš-a* *čar* ***kx̂i-zwa-j***] *stol*
girl-ERG letter.ABS write-IPFV-PTCP table
'the table on which the girl is writing a letter'

d. [*ruš-a* *čar* ***kx̂i-zwa-j***] *juğ*
girl-ERG letter.ABS write-IPFV-PTCP day
'the day on which the girl is writing a letter'

The goal of this chapter is to provide a systematic description of all the types of participial orientation attested in the languages of the sample, to propose possible motivations for these types, and to establish, where possible, correspondences of certain patterns with other aspects of the language structure. In Section 3.2, I will discuss the range of participants that demonstrate significant distinctions with respect to relativization and should be taken into account in the investigation of participial orientation. Sections 3.3 and 3.4 embrace all the participles demonstrating inherent orientaltion, namely participles oriented towards core and peripheral clause participants respectively. Section 3.5 provides an overview of contextually oriented participles. In Section 3.6, I discuss the most widely attested means of extending participial orientation, namely resumptive pronouns. Section 3.7 is devoted to the discussion of possible functional motivations underlying the development of attested types of orientation. The major findings of the chapter are summarized in Section 3.8.

3.2. Relativized participants

If we define participle as morphosyntactically deranked predicate of a relative clause (cf. Section 2.3.1), then the participant towards which the participle is oriented is in essence the participant relativized by this relative clause. Therefore, it is convenient to link the discussion of possible participial orientations to the range of relativizable positions presented in the form of the Noun Phrase Accessibility Hierarchy, an implicational scale introduced by Keenan & Comrie (1977). The general idea of this hierarchy is that NPs can be more or less accessible to relativization depending on their role in the relative clause. The original formulation of the Accessibility Hierarchy is the following:

(49) Subject (SU) >
Direct Object (DO) >
Indirect Object (IO)>
Oblique (OBL) >
Genitive (POSS) >
Object of Comparison (OCOMP)

The main prediction regarding this hierarchy is that if a language allows to relativize a certain position, then it must also allow to relativize all the positions to the left, up to the subject. Different relativization strategies (e.g. employing relative pronouns, resumptive pronouns, complementizers or non-finite verb forms) can be used for different positions, but each strategy has to apply to a continuous segment of the hierarchy. It has later been shown that, apart from the basic cross-linguistic implication, the relative accessibility to relativization of different grammatical roles can also be reflected in a number of various tendencies. For instance, Maxwell (1982) formulated several diachronic typological generalizations based on the Accessibility Hierarchy, Herrmann (2003) discovered the correlation based on a corpus of British dialect data between the NP position on the hierarchy and the frequency of corresponding relative clauses, while Diessel & Tomasello (2005) showed the relevance of the hierarchy for the acquisition of relative clauses by English- and German-speaking children.

Numerous additions and elaborations have been proposed since the Accessibility Hierarchy was introduced, see, for instance, Keenan & Comrie (1979), Keenan (1985), Lehmann (1986), Fox (1987), among others. One of the most important modifications concerns the notions of subject and object as positions on the hierarchy. The concepts themselves are known to be problematic, and there has been a lot of discussion among typologists concerning their cross-linguistic applicability, cf. Li (1976), Comrie (1981), Foley & Van Valin (1984), Croft (1991), Dixon (1994), and others. As regards the Accessibility Hierarchy, the problem with the positions of subject and object is primarily connected to the difference between accusative and ergative languages. It was proposed as early as Johnson (1974) and Woodbury (1975) that in ergative languages it is not the subject in the traditional sense that is most accessible to relativization (S/A), but rather the absolutive argument (S/P)[12]. It was, however, shown in Fox (1987) that also for nominative languages the distinction between transitive and intransitive subjects can be relevant, since in a corpus of conversational English the instances of both S and P relativization are significantly more frequent than those of A relativization. In general, this problem has been an issue of a considerable debate, which I have no intention to reproduce here for the sake of brevity. The practical consequence of this discussion for my research is that in the study of participial orientation all the three core participants should be considered separately. I will, therefore, take all of them into account.

Another position on the Accessibility Hierarchy that appears to be problematic is that of the indirect object. This label is used by Keenan & Comrie (1977) to refer to the recipient participant in the ditransitive construction. The authors themselves remark that this position is the subtlest, since many languages assimilate it either to other oblique cases, or to direct objects (Keenan & Comrie 1977: 72). English, in principle, provides examples for both kinds of cases, compare the sentence *John gave a book to Mary*, where the recipient is encoded by a prepositional phrase, and the double object construction in *John gave Mary a book*. At the same time, some languages do have a grammatical role of the indirect object which is distinct from both direct objects and obliques, which id

[12] Following Comrie (1981), I will henceforth use the labels A, P and S to refer to the core participants of the clause. A stands for the subject of the transitive clause, P denotes the object of the transitive clause, and S is the label for the single participant of the intransitive clause.

reflected in the relativization pattern. For instance, in Apatani, the contextually oriented nominalization can only be used to relativize subjects, cf. (50a), direct objects, cf. (50b), and datives, cf. (50c), see also an independent clause in (50d) demonstrating the difference in the encoding between directs objects and datives:

(50) Apatani (Sino-Tibetan > Tani; India; Abraham 1985: 131–132, 123)

a. [*alyi mi ka lanɨbo*] *nyɨmɨ hɨ aya do*
pig ACC GEN catch.NMZ woman DET good exist
'The woman who caught the pig is good.'

b. *mólu* [*ɲɨka labɨne*] *alyi mi medo a?*
they I.GEN bring.NMZ pig ACC search.exist Q
'Did they search for the pig that I brought?'

c. [*ɲɨka dɨgotaŋgo bɨnɨ*] *alyi mi mó latubine*
i.GEN food give.NMZ pig ACC he catch.PST
'He caught the pig to which I gave food.'

d. *ánɨ* ***hime*** ***mi*** *ude ho* ***ó*** *bibɨne*
mother **child** **DAT** house LOC **beer** give.PST
'Mother gave beer to the child in the house.'

In addition to that, Apatani also features an inherently oriented nominalization used to relativize instruments, cf. example (81) and the discussion in Section 3.4, whereas all the other positions of the Accessibility Hierarchy cannot be relativized in the language[13].

The examples of restrictions attested in Apatani seem to be very rare. However, they are not the only evidence for the relevance of the indirect object position for the Accessibility Hierarchy. In Sheko (North Omotic, Ethiopia), quite in line with the prediction of Keenan & Comrie (1977: 92), the frequency of resumptive pronoun use increases towards the rightward end of the hierarchy. In case of direct object relativization it is almost prohibited, for obliques it is strongly preferred, while for indirect objects both strategies appear to be available, cf. Hellenthal (2010: 349–350), which once again singles out this grammatical role as a separate position, see more on the use of resumptive pronouns in Section 3.7.

The options for relativization united under the label 'oblique' in the Accessibility Hierarchy are in reality very diverse, both from the semantic and the syntactic point of view. Concerning significant syntactic heterogeneity that can be attested in individual languages, a good illustration is provided by Kalmyk. As shown in Krapivina (2009: 499–504), Kalmyk makes use of two participial relativization strategies. The first one, where the relativized NP is not represented in any way within the relative clause (the so-called

[13] Keenan & Comrie (1977: 72) illustrate the relevance of the indirect object position by several examples from Tamil (Southern Dravidian; India) claiming that it only uses the participial relativization strategy for relativizing subjects, direct objects and indirect object, whereas lower positions are relativized by means of the correlative strategy. This information, however, contradicts Lehmann's (1993) descriptive grammar of Tamil which I use as a primary source of information on Tamil in this study. According to Lehmann (1993: 288–293), various kinds of obliques, such as instruments and locatives, can also be relativized using the participial strategy.

gap strategy[14]), can be used to relativize subjects, direct and indirect objects, and all kinds of obliques, cf. an example of locative relativization in (51a). The second strategy, where the role of the relativized NP in the relative clause is indicated by a resumptive element, is used to relativize lower positions of the Accessibility Hierarchy. The important thing here is that the resumptive element employed in the second strategy is in essence a possessive marker, which needs to attach to a participant encoded as a possessor. Therefore, this strategy only applies to the cases of possessor relativization, and also to the relativization of obliques expressed by postpositional phrases, which in Kalmyk are syntactically identical to possessive constructions, compare (51b) and (51c). For the relativization of the obliques expressed by case forms, only the first strategy is applicable. As a result, in the analysis of Kalmyk relativization it is sensible to divide obliques into two separate positions on the hierarchy, case-marked obliques and postpositional obliques.

(51) Kalmyk (Mongolic; Russia; Krapivina 2009: 501–503)

a. *kuuxən^{j}-də* [*mini* *suu-xə*] *stul* *av-ad* *irə-Ø*
kitchen-DAT 1SG.GEN sit-PTCP.FUT chair take-CVB.ANT come-IMP
'Bring the chair on which I am going to sit to the kitchen.'

b. [***dotrə-n^{j}*** *määčə* *kevt-sən*] *avdər* *orə-n* *dor* *bää-nä*
inside-POSS.3 ball lie-PTCP.PST chest bed-EXT under be-PRS
'The chest in which there is a ball is under the bed.'

c. [*gerə-n^{j}* *šat-žə* *od-sən*] *övgə-n* *Elstə*
house-POSS.3 burn-CVB.IPFV leave-PTCP.PST old.man-ext Elista
bää-xär *jov-la*
be-CVB.PURP go-REM
'The old man whose house had burned down moved to Elista.'

As regards semantic heterogeneity of obliques, basically all non-core participants of the clause fall into this class, in many cases including recipients if they pattern syntactically with other peripheral participants. Apart from that, the relativized oblique roles most commonly discussed in the descriptions of individual languages are benefactives, comitatives, instrumentals, locatives, and time adverbials.

The position of possessor is not homogeneous either. In some languages, the availability of a certain relativization strategy or possessor relativization in general depends on the role of the possessed participant. For instance, in Kalmyk, it is totally acceptable to relativize a possessor of a subject, while relativizing a possessor of a direct object is problematic for many speakers, compare the problematic example (52) to the fully grammatical sentence (51c) above:

[14] It should be emphasized that in this dissertation the broad definition of gap strategy is adopted, i.e. this term refers to any strategy in which the relativized argument is not overtly represented within the relative clause, cf. Comrie & Kuteva (2013).

(52) Kalmyk (Mongolic; Russia; Krapivina 2009: 503−504)
??[*čonə* *ükr-i-n*^{j} *id-sən*] *övgə-n* *xö*
wolf cow-ACC-POSS.3 eat-PTCP.PST old.man sheep
xuld-žə *avə-v*
sell-CVB.IPFV take-PST
'The old man whose cow a wolf had eaten bought a sheep.'

Almost the same restriction applies to Kolyma Yukaghir, where only a possessor of an intransitive subject can be relativized, but not other types of possessors (Maslova 2003: 417). However, in this study, I do not make a consistent distinction among different types of possessors, primarily because for many languages in my sample such detailed information is simply not available. I will, nevertheless, emphasize the role of the possessum in the relative clause when it appears to be relevant.

The object of comparison as a position on the Accessibility Hierarchy is not considered in this study, primarily due to the lack of data. The same concerns various cases of relativization from a subordinate clause illustrated by the sentence from Imbabura Quechua in (53), where it is the indirect object of a complement clause that gets relativized (the position where the indirect object would be in the clause if not for relativization is indicated by 'Ø'):

(53) Imbabura Quechua (Quechuan; Ecuador; Cole 1985: 57)
NP[*chay* S[*Marya* S[*Juzi* *libru-ta* *Ø* *kara-shka*]-*ta* *kri-j*]
that María José book-ACC give-NMZ-ACC believe-NMZ
wawa]NP *ña-mi* *ri-rka*
child already-VLD go-PST
'The child to whom María believes José gave the book already left.'

Examples like the one above are important if we aim to evaluate the capacity of a certain relativization strategy, but they are of very little use in connection with the notion of participial orientation, which is the focus of this chapter. Indeed, it is hard to imagine a language which would have a specialized participial form oriented towards the indirect object of a subordinate clause and not capable of relativizing any other position. Therefore, I am not interested in such constructions within the framework of this study.

To summarize, I will further take into account the following types of participants, determined based on both their grammatical and semantic properties:

1) S, or the single participant of the intransitive clause;
2) A, or the agent-like participant of the transitive clause;
3) P, or the patient-like participant of the transitive clause;
4) indirect object, or the recipient in the ditransitive construction (if treated differently from direct objects and obliques in a given language);
5) obliques, or peripheral participants, such as instrumental and locative (differentiating between various semantic types where appropriate);
6) possessor, or the participant encoded in the same way as prototypical possessors in a given language (i.e. including inanimate possessors and the like).

All the participial forms in the languages of the sample can be classified into several groups according to the combinations of the aforementioned positions that they are able to relativize. In the following sections, I will discuss all the attested combinations and the resulting groups formed by participles, which constitute the typology of participial orientation. Before proceeding to the examination of the data, one final clarification is in order regarding the difference between inherent and contextual orientation. Although active participles are able to relativize two of the participant types listed above (A and S), they are, of course, considered inherently oriented. This is justified by the fact that in each clause there is only one participant that can be relativized using an active participle, namely S in an intransitive clause, and A in a transitive clause. The same argumentation concerns participial forms that can relativize both S and P participants, which will be discussed in section 3.3.5. On the other hand, if a participle can relativize both A and P participants, its orientation can only be regarded as contextual, since both of these participants typically occur together within one transitive clause.

3.3. Orientation towards core participants

3.3.1. On patterning of core participants

Out of 123 inherently oriented participles in my sample, 111 are oriented towards either a particular core participant (A, P or in very rare cases S) or a combination thereof. This section focuses on the attested combinations of core participants in participial orientation and their underlying motivation.

It is a well-known fact that in many languages either the A or the P argument of a main verbal clause is treated in the same way as the S argument. The identity of treatment can be manifested in the marking of full noun phrases or in the marking of pronouns, cf. Comrie (2013a) and (2013b) respectively, or in the verbal person marking, cf. Siewierska (2013). The situation when the A argument is treated in the same way as the S argument is commonly referred to as a *nominative-accusative* (or simply: *accusative*) system, while the system where the P argument is treated in the same way as the S argument is called *ergative-absolutive* (or simply: *ergative*). The first type of patterning manifested in the marking of noun phrases is illustrated by the Russian example in (54), and the second is exemplified by the sentences in (55) with the same meaning from Hunzib (identically encoded participants are shown in bold):

(54) Russian (Indo-European > Slavic; Russia; personal knowledge)
a. ***devočk-a*** *spa-l-a*
girl(F)-NOM.SG sleep-PST-F.SG
'The girl slept.'

b. ***mal'čik-Ø*** *udari-l-Ø* *devočk-u*
boy(M)-NOM.SG hit-PST-M.SG girl(F)-ACC.SG
'The boy hit the girl.'

(55) Hunzib (Avar-Andic-Tsezic, Russia; van den Berg 1995: 122)
a. ***kid*** *y-ut'-ur*
girl.ABS CL_2-sleep-PST
'The girl slept.'
b. *oždi-l* ***kid*** *hehe-r*
boy-ERG **girl.ABS** hit-PST
'The boy hit the girl.'

Labels *accusative* and *ergative* are also commonly used to refer to S/A and S/P patterning in the building up of complex clauses. A language is accusative in this respect if it requires a common argument of two clauses to be in S or A function in each, and it is considered ergative if this common argument can have S or P function. A concise overview of the main features of ergative and accusative systems for marking core syntactic relations and for clause linking can be found in Aikhenvald & Dixon (2011: 144–150)[15]. In the same paper, the authors also discuss a number of other associations between S and A participants and S and P participants, which, as they claim, are based on semantic or discourse rather than syntactic factors.

The association between S and A arguments is commonly manifested in a number of contexts in typologically very diverse languages. Here are several examples provided by Aikhenvald & Dixon (2011: 151):

(a) In an imperative construction, the most common — often, the only — referent for S (in an intransitive) or A (in a transitive imperative) is second person. Moreover, many languages allow the S or A argument of an imperative not to be explicitly stated when it is second person (or, when it is second person singular).

(b) When a concept such as 'can', 'try' or 'begin' is realised by a lexical verb, it is likely to have the same subject (S or A) as the verb to which it is linked. For example, in English, *John tried to run, and Mary began writing*. A further example of this concerns Serial Verb Constructions; see, for example, Aikhenvald (2006).

(c) A reflexive construction involves two underlying arguments which have the same reference. In a common variety of reflexive construction, one argument is fully stated (we can call this the 'controller'), while the second argument is realised as a reflexive pronoun. If one of the two arguments has subject (A or S) function, then this will always be the controller with the other argument shown by a reflexive pronoun. For example, *John*$_A$ *cut himself*$_O$ and *Mary*$_S$ *looked at herself in the mirror* in English.

This type of association is widely known, and it is discussed in detail, for instance, in Du Bois (1987: 839–843) and Dixon (1994: 131–142). According to Aikhenvald & Dixon (2011: 151), the outlined instances of this association relate to the fact that the topic around which a discourse is organised is in the great majority of instances human, and generally the controller of an activity, and thus in A or S function. Due to this reason,

[15] Aikhenvald and Dixon (2011) use the label O to refer to what I call P participant.

these associations apply equally to languages with accusative or ergative marking of core syntactic functions.

S and P participants also demonstrate recurrent associations between themselves, which have received relatively little attention as such in the literature (some of them were discussed in Keenan 1984, Dixon 1994, Kazenin 1994, and Mithun & Chafe 1999). Among such associations discussed in Aikhenvald & Dixon (2011: 151–160) are the following:

(a) *Nominal incorporation*. If nominal incorporation relates to a core function, this is almost always S or P (and not A). Examples of this instance of S/P patterning can be found in Rembarrnga (Gunwinyguan, Australia). There is a considerable literature on this, including Mithun (1984), Fortescue (1992), and de Reuse (1994).

(b) *Suppletive verb forms*. If a language has suppletive verb forms with a choice of form depending on whether a core argument has singular or plural reference, the choice of suppletive verb forms depends on the number reference of the S argument (in an intransitive clause) or of the P argument (in a transitive clause). I am not aware of any language where it would relate to the A argument. The languages demonstrating S/P patterning in this domain are, for instance, Jarawara (Arauan, Brazil), Comanche (Uto-Aztecan, United States), and Meryam Mir (Western Fly, Australia). All of these languages are rather accusative than ergative in other domains of their morphology and syntax. Some discussion on this issue can be found in Durie (1986).

(c) *Verbal classifiers*. If a language has verbal classifiers, i.e. morphemes which occur on the verb and characterize a core argument in terms of its shape, form, consistency and other semantic properties (often to the exclusion of animacy and humanness), these verbal classifiers typically categorise S and P (hardly ever A). This patterning is attested in Mundurukú (Tupian, Brazil), a predominantly accusative language. More information on verbal classifiers in general can be found in Aikhenvald (2000: 149–161).

(d) *Demonstratives with limited syntactic function*. If a language has constraints on the functions in which a certain demonstrative may occur, this demonstrative is very likely to be restricted to S and P functions. This constraint is characteristic, for example, of a specialized demonstrative in Manambu (Sepik, Papua New Guinea), which refers to a previously established topic that has not been mentioned for some time and is now being 'reactivated'. A similar constraint is also attested in Dyirbal (Pama-Nyungan, Australia), which demonstrates a significant degree of ergativity in other domains, and Northern Subanen (Austronesian, Philippines), which is of mixed accusative and ergative character, cf. Daguman (2004: 207).

Aikhenvald and Dixon point out two reasons for the associations between S and P which they consider distinct from ergative marking in the syntactic meaning of the term. Firstly, they mention the fact that there is often a close semantic correlation between a transitive verb and its P argument (rather than there being one between a transitive verb and its A argument), and also between an intransitive verb and its S argument. In particular, it can be manifested in the rules regulating nominal incorporation, suppletive verb forms, and verbal classifiers. Secondly, if we consider demonstratives only occurring in S and P functions, another explanation relates to the seminal finding by Du Bois (1987: 805) that 'arguments comprising new information appear preferentially in the S or O roles, but not in the A role.' Therefore, a demonstrative with deictic effect, which draws

attention to something in the context of speech, is likely to be introducing a new entity into the discourse. As I will show further in Section 3.3.5, the latter reason for the patterning of S and P participants seems to be especially relevant in the context of relativization.

To summarize, Aikhenvald & Dixon (2011) argue that the observed types of patterning of core participants are not necessarily related to the syntactic structure of the languages where they are attested, but should rather be explained from a semantic/pragmatic point of view. I will further show that this claim is to a certain extent supported by the data from participial relative clauses. The subsequent sections are devoted to four existing types of participles oriented towards certain core participants in different combinations. Sections 3.3.2 and 3.3.3 discuss active (A/S) and passive (P) participles, the two types widely known and accepted in linguistic literature, largely due to their presence in many European languages. Section 3.3.4 presents data on agentive (A) participles attested in the languages of South America. Finally, in Section 3.3.5, I will discuss absolutive (S/P) participles, which have so far received very little attention but, as I will show, deserve to be considered more closely, especially with respect to their motivations.

3.3.2. Active participles

The term *active participles* is usually used to refer to non-finite forms that can relativize both S and A participants (see Figure 3 below). However, as I will further show, it is reasonable to consider forms specializing on S relativization under this label as well.

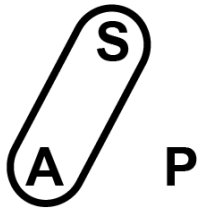


Figure 3.Orientation of active participles

Prototypical active (S/A) participles are characteristic of many languages belonging to the Standard Average European type (henceforth SAE, see Haspelmath 2001 on this notion), both Indo-European, cf. example (56) from Lithuanian, and non-Indo-European, cf. example (57) from Hungarian:

(56) Lithuanian (Indo-European > Baltic; Lithuania; Arkadiev 2014: 85)

[*Iš*	*mokykl-os*	***parėj-us-io***]	*vaik-o*
from	school-GEN.SG	come.home-PST.PA-GEN.SG.M	child-GEN.SG

skub-a-me *pa-klaus-ti* *apie* *pažymi-us…*
hurry-PRS-1PL PRV-ask-INF about mark-ACC.PL
'We hurry to ask the child who has come back from school about marks…'

(57) Hungarian (Uralic > Ugric; Hungary; Kenesei et al. 1998: 45)
A [*könyv-et* *a* *fiú-nak* *gyorsan* ***olvas-ó***] *lány* *itt* *van.*
the book-ACC the boy-DAT fast **read-PTCP.ACT** girl here is
'The girl who reads the book to the boy fast is here.'

Among the two types of subject participants clustered together in active orientation, the S participants almost never have participles specializing exclusively in their relativization. In my sample, such forms are only attested in two languages, West Greenlandic and Kamaiurá. In West Greenlandic, the participial marker *-soq* on its own allows to relativize solely intransitive subjects, cf. (58a). This marker, however, can attach to transitive verb stems as well, although in this case they need to take a detransitivizing suffix. The original direct object is then either not expressed at all, or it receives instrumental marking, cf. (58b). Therefore, the language has a regular way of relativizing both S and A participants using one and the same form, even though the latter option is only available with additional morphology.

(58) West Greenlandic (Eskimo-Aleut > Eskimo; Greenland; van der Voort 1991: 17, 21)
a. *arnaq* [***suli-soq***]
woman work-PTCP.ACT.3SG
'the/a woman who is working'
b. *angut* [(*uannik*) ***naapit-si-soq***] *sianiip-poq*
man i-INS meet-HTR-PTCP.ACT.3SG be.stupid-IND.3SG
'The man who met me is stupid.'

The second instance of participle specializing on S relativization is attested in Kamaiurá, which employs different means for relativizing each of the core participants, *-ama'e* being the marker for S relativization, *-tat* for A relativization, and *-ipyt* for P relativization, cf. (59):

(59) Kamaiurá (Tupian > Tupí-Guaraní; Brazil; Seki 2000: 179, glosses by van Gijn 2014: 287)
a. *a-mo-y'u* *rak* *akwama'e-a* [***i-'ywej-ama'e-her-a***]
1SG-CAUS-drink at man-NUC 3-be.thirsty-NMZ.S-PST-NUC
'I made the man who was thirsty drink.'
b. *akwama'e-a* *o-juka* *wyrapy-a* [*kunu'um-a* ***pyhyk-ar-er-a***]
man-NUC 3-kill hawk-NUC boy-NUC catch-NMZ.A-PST-NUC
'The man killed the hawk that caught the boy.'
c. *o-yk* *akwama'e-a* [***i-mono-pyr-er-a*** *morerekwar-a* *upe*]
3-come man-NUC 3-send-NMZ.P-PST-NUC boss-NUC DAT
'The man who was sent by the boss came.'

Kamaiurá is the only language in my sample with a tripartite distinction of this type. As shown in Seki (1990), the crucial opposition in independent clauses in Kamaiurá is the semantic opposition between active and inactive participants, that is primarily A and P participants respectively. The same semantic opposition presumably motivates the existence of separate participles for A and P relativization. On the other hand, the form used for S relativization conceivably does not have any semantic motivation on its own, but rather fills the gap in the relativizing capacity of the language. This assumption is supported by the fact that no other languages in the sample possess participial forms specializing on S relativization and not being able to relativize any other participants. The other option, namely a specialized form for A relativization, is more common, as I will show in Section 3.3.4 below.

Among the languages of the sample, at least 42 have forms that definitely qualify as active participles. In 9 of these languages (Rif Berber, Fula, Maba, Krongo, Garrwa, Martuthunira, Wambaya, Yimas, and Kobon) the active participle is the only (affirmative) participial form, in 13 languages it forms a binary opposition with either a passive (P) or an absolutive participle (S/P) participles, whereas in all the others it belongs to a more complicated participial system. I will discuss this topic in detail in Chapter 7. In accordance with the idea expressed in Aikhenvald & Dixon (2011), the existence of active participles in a language does not have to be parallelled in all other domains within the grammar of this language. For instance, active participles are attested in Garrwa (Garrwan, Australia), which exhibits split ergative pattern, with nouns and demonstratives following ergative alignment and pronouns following accusative alignment (Mushin 2012: 34).

The list of sample languages that have active participles is given in Table 3. Their map is presented in Figure 4.

Figure 4. Active participles

Table 3. Language with active participles

FAMILY	GENUS	LANGUAGE
AUSTRALIA (4/5)		
Garrwan	Garrwan	Garrwa
Mirndi	Wambayan	Wambaya
Pama-Nyungan	Western Pama-Nyungan	Martuthunira
Tangkic	Tangkic	Kayardild
PAPUNESIA (4/7)		
Austronesian	Celebic	Muna, Wolio
Lower Sepik-Ramu	Lower Sepik	Yimas
Nuclear Trans New Guinea	Madang	Kobon
NORTH AMERICA (6/13)		
Cochimi-Yuman	Yuman	Maricopa
Eskimo-Aleut	Eskimo	West Greenlandic
Yokutsan	Yokuts	Wikchamni
Seri	Seri	Seri
Uto-Aztecan	Numic	Tümpisa Shoshone
	Tarahumaran	Warihio
SOUTH AMERICA (7/16)		
Araucanian	Araucanian	Mapudungun
Arawakan	Inland Northern Arawakan	Tariana
Barbacoan	Barbacoan	Tsafiki
Jivaroan	Jivaroan	Aguaruna
Pano-Tacanan	Panoan	Matsés
Quechuan	Quechuan	Tarma Quechua
Tupian	Tupí-Guaraní	Kamaiurá
AFRICA (6/12)		
Afro-Asiatic	Berber	Rif Berber
	Egyptian-Coptic	Middle Egyptian
	North Omotic	Koorete
Atlantic-Congo	North Atlantic	Fula
Central Sudanic	Moru-Ma'di	Ma'di
Maban	Maban	Maba
EURASIA (15/47)		
Afro-Asiatic	Semitic	Modern Standard Arabic
Indo-European	Armenian	Armenian
	Baltic	Lithuanian

Indo-European	Germanic	German
	Slavic	Russian
Kartvelian	Kartvelian	Georgian
Sino-Tibetan	Mahakiranti	Dolakha Newar
	rGyalrongic	Japhug rGyalrong
Uralic	Finnic	Finnish
	Mari	Meadow Mari
	Mordvin	Erzya
	Permic	Beserman Udmurt, Komi-Zyrian
	Saami	North Saami
	Ugric	Hungarian

3.3.3. Passive participles

In this work, I use the label *passive participles* to refer to non-finite forms that relativize P participants, as shown in Figure 5 below:

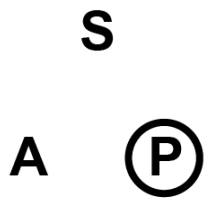


Figure 5. Orientation of passive participles

Examples of passive participles can be found in many European languages, such as, for instance, Russian or Lithuanian, where relative clauses formed by passive participles can be perceived as direct correspondences of finite passive clauses. In fact, these passive participles are commonly used to form passives in independent sentences, compare examples (1b) and (4) from Russian repeated here as (60a) and (60b) respectively:

(60) Russian (Indo-European > Slavic, Russia; personal knowledge)

a. *pis'm-o* [***na-pisa-nn-oe*** *devočk-oj*]
letter(N)-NOM.SG PFV-write-PTCP.PST.PASS-N.NOM.SG girl(F)-INS.SG
'the letter written by the girl'

b. *Pis'm-o* *by-l-o* ***na-pisa-n-o*** *devočk-oj.*
letter(N)-NOM.SG be-PST-N.SG PFV-write-PTCP.PST.PASS-N.SG girl(F)-INS.SG
'The letter was written by the girl.'

Due to this, in the generative tradition, such participial relative clauses are usually considered instances of subject relativization, cf., for example, de Vries (2002: 58). These forms tend to demonstrate the properties that are characteristic of prototypical passives as listed, for example, in Dixon & Aikhenvald (2000: 7), primarily demoting the original A argument to some peripheral position (for instance, instrumental, as in the Russian examples above) or omitting it altogether ('agentless passive'). In some languages, relative constructions featuring passive participles can actually be shown to be instances of subject relativization from a syntactic point of view. For instance, in Modern Standard Arabic, passive participles agree in gender and number with the P participant of the relative clause, which is a valid criterion for subjecthood in the language, see example (61) below and the discussion of passive participles in Modern Standard Arabic in Section 5.4.

(61) Modern Standard Arabic (Afro-Asiatic > Semitic; multiple countries; Badawi et al. 2004: 114)
ʔal-*jihat-****u*** [***l-manūṭ-u*** *bi-hā*
the-agency.F.SG-**NOM** **the-trust.PTCP.PASS.M.SG-NOM** in-F.SG
xtiyār-u *l-musāfir-īna*]
CONSTR.choice**(M).SG-**NOM the-traveller-M.PL.GEN
'the agency with which the choice of travellers has been entrusted'

For most languages, however, we do not have enough syntactic evidence to support the analysis of these constructions either as subject relativization or as direct object relativization. Therefore, in this study I rely on the original structure of the clause before relativization, which means that all the participles used for relativizing the P participant will be considered together, irrespective of whether the underlying clause has presumably undergone passivization prior to relativization or not.

The second prominent type of passive participles includes the forms that cannot be regarded as non-finite equivalents of independent passives, since the languages they are attested in do not feature well-established finite passives whatsoever. One of such languages is Nias, where the only participle in its default form is used for relativizing P participants, cf. (62):

(62) Nias (Austronesian > Northwest Sumatra-Barrier Islands; Indonesia; Brown 2001: 420)
U-fake *zekhula* [***ni-rökhi-nia***].
3SG.REAL-use coconut.MUT PASS-grate-3SG.POSS
'I used the coconut which she grated.'

In the relative clauses introduced by participles of the second type, the subjects are usually expressed, since demoting the agent is not among the primary functions of these forms. Moreover, in some languages it is obligatory to express the agent in a passive participial relative clause, at least under certain circumstances. For instance, the example above from Nias would be ungrammatical without the possessive marker on the participle denoting the agent, since agents in the Nias participial relative clauses always have to be expressed if they are human, and otherwise are also very common (Brown 2001: 421).

It should be emphasized once again that in this dissertation both types of forms presented above are regarded as passive participles, irrespective of their label and status in the language. The only thing that matters is that all of them are inherently oriented towards original P participants of the clause, that is they function as a means of their relativization. Interestingly, both types of passive participles can be attested in a single language. In Finnish, there are three participles inherently oriented towards the P participant, namely the present passive participle in *-tava*, the past passive participle in *-tu* and the so-called agentive participle in *-ma*. The first two of them do not allow for the expression of the agent, even though they can easily take other verbal dependents, such as temporal or quality adverbials, cf. (63a) and (63b). The participle in *-tu* is also the main means of forming perfective passives in independent clauses, cf. (63c). The form in *-ma*, contrarily, requires the agent to be expressed, cf. (63d):

(63) Finnish (Uralic > Finnic; Finland; personal knowledge)
a. *useita* [*pian* ***järjeste-ttäv-iä***] *tilaisuuks-ia*
many-PART.PL soon organize-PTCP.PASS.PRS-PART.PL occasion-PART.PL
'many events that will be/have to be organized soon'
b. *useita* [*hyvin* ***järjeste-tty-jä***] *tilaisuuks-ia*
many-PART.PL well organize-PTCP.PASS.PST-PART.PL occasion-PART.PL
'many well organized events'
c. *Tilaisuudet* *on* *hyvin* ***järjeste-tty***.
occasion-NOM.PL be.PRS.3SG well organize-PTCP.PASS.PST
'The events are organized well.'
d. *use-ita* [***järjestä-m-iä-*(mme)***] *tilaisuuks-ia*
many-PART.PL organize-PTCP.A-PART.PL-POSS.1PL occasion-PART.PL
'many occasions organized by us'

A similar situation is observed in Japhug rGyalrong. In this language, the only non-finite form that can relativize P participants is the participle in *kɤ-*. This participle, however, can appear in two different types of constructions. The first type has a TAM marker but no possessive prefix referring to the agent. The second type, on the other hand, has no TAM prefix but requires a possessive prefix coreferent with the A participant of the relative clause[16].

(64) Japhug rGyalrong (Sino-Tibetan > rGyalrongic; China; Jacques 2013: 22)
a. [*chɤmdɤru* *tɤ-kɤ-sɯ-ɤzgɯr*] *nɯ* *ɲɤ-sɯ-ɤstu-nɯ* *qhe,*
drinking.straw PFV-NMZ.O-CAUS-bent TOP EVD-CAUS-straight-PL COORD
tɕe *to-mna*
COORD EVD-recover
'He put straight the straw that had been bent, and (her son) recovered.' (2013 only)

[16] Another difference between these two constructions is that in the first type the relative clauses are usually internally headed, while in the second type they are either prenominal or headless, cf. Jacques (2016: 22). This difference, however, is not relevant for the current discussion.

b. [*azo* *a-mɤ-kɤ-suz*] *tɤjmɤɣ* *nɯ* *kɤ-ndza* *mɤ-naz-a*
1SG POSS.1SG-NEG-NMZ.O-know mushroom DEM INF-eat NEG-dare-1SG
'I do not dare to eat the mushrooms that I do not know.' (Jacques 2016: 10)

Passive participles sometimes serve as a basis for orientation extension, i.e. they can be modified by some formal means in order to allow the relativization of certain lower positions of the Accessibility Hierarchy, see Section 3.6 for a more detailed discussion of this topic. Apart from that, in some languages passive participles can also allow to relativize a limited number of peripheral participants without any additional morphology. For instance, in both Russian and Finnish the locative argument of the verb meaning 'to live' can be relativized by a regular passive participle, cf. examples (65) and (66) respectively. According to my language intuition, in both cases the range of relativizable participants is chiefly restricted to arguments belonging to the valency of the verb, see Section 3.5.1 for further discussion on this matter. It is noteworthy, however, that most of such "extended passive" participles are lexicalized in respective languages, so this observation might belong to the domain of adjectival rather than participial orientation, see Generalova (2016) on the orientation of Russian deverbal adjectives.

(65) Russian (Indo-European > Slavic; Russia; personal knowledge)
[*obita-em-yj*] *ostrov*
live-PTCP.PRS.PASS-M.NOM.SG island(M).NOM.SG
'an island where someone lives (an inhabited island)'

(66) Finnish (Uralic > Finnic; Finland; personal knowledge)
[*asu-ttu*] *saari*
live-PTCP.PST.PASS.NOM.SG island.NOM.SG

Specialized passive participles can also be derived in languages which have other participial forms and a passive marker. For instance, in Seri, it is possible to derive a passive participle from the active one by adding a special prefix (even though there exists a specialized non-finite form for relativizing the P participant illustrated by example (16) in Section 2.2), cf. example (67):

(67) Seri (Seri; Mexico; Marlett 2012: 220)
a. [*k-i-asi*]
NMZ.S-TR-drink
'who drinks/drank it'
b. [*ʔa-p-asi*]
NMZ.S-PASS-drink
'that/what is/was drunk'

In Kalmyk (Mongolic; Russia; personal field notes), contextually oriented participles can in very rare cases optionally take the regular passive affix, which results in an inherently oriented passive form. I have, however, never encountered a grammatical description where the properties of such forms and their distribution would be discussed in detail, and therefore, this topic will not be considered in this study.

Passive participles are not as common as active forms, but according to the data on the languages of the sample, they can still be found all over the world. The forms clearly specializing in the relativization of the P participant are attested in two languages belonging to the African macroarea (Middle Egyptian and Ma'di), eleven languages spoken in Eurasia (Armenian, Erzya, Finnish, Georgian, Japhug rGyalrong, Kalmyk, Lithuanian, Modern Standard Arabic, North Saami, Russian and West Greenlandic), two North American languages (Seri and Wikchamni), three Papunesian languages (Muna, Nias and Wolio), and three languages from South America (Kamaiurá, Mapudungun and Tariana).

The list of languages making use of passive participles is provided in Table 4. Their worldwide distribution is shown in Figure 6.

Figure 6. Passive participles

Table 4. Languages with passive participles

FAMILY	GENUS	LANGUAGE
PAPUNESIA (3/7)		
Austronesian	Celebic	Muna, Wolio
	Northwest Sumatra-Barrier Islands	Nias
NORTH AMERICA (3/13)		
Eskimo-Aleut	Eskimo	West Greenlandic
Yokutsan	Yokuts	Wikchamni
Seri	Seri	Seri
SOUTH AMERICA (3/16)		
Araucanian	Araucanian	Mapudungun
Arawakan	Inland Northern Arawakan	Tariana
Tupian	Tupí-Guaraní	Kamaiurá
AFRICA (1/12)		
Central Sudanic	Moru-Ma'di	Ma'di
EURASIA (10/47)		
Afro-Asiatic	Semitic	Modern Standard Arabic
Indo-European	Armenian	Armenian
	Baltic	Lithuanian
	Slavic	Russian
Kartvelian	Kartvelian	Georgian
Mongolic	Mongolic	Kalmyk
Sino-Tibetan	rGyalrongic	Japhug rGyalrong
Uralic	Finnic	Finnish
	Mordvin	Erzya
	Saami	North Saami

3.3.4. Agentive participles

As I mentioned in Section 3.3.1 above, alongside with participles that can relativize any subjects regardless of the clause properties, some languages make use of forms that can only relativize subjects of transitive clauses, i.e. A participants, see Figure 7 below. I will refer to these forms as *agentive participles*.

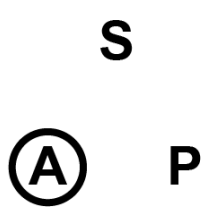


Figure 7. Orientation of agentive participles

In my sample, agentive participles are attested in five languages, all of which are spoken in South America, namely Kamaiurá, Kokama-Kokamilla, Matsés, Panare, and Urarina. An example from Kokama-Kokamilla is provided below, compare the instance of A relativization in (68a) with the instance of S relativization in (68b):

(68) Kokama-Kokamilla (Tupian > Tupí-Guaraní; Peru; Vallejos Yopán 2010: 585, 593)

a. *yawara* [*tsa=mimira* ***karura-tara***] *yapana=uy*
dog 1SG.F=woman.son **bite-NMZ.A** run=PST1
'The dog that bit my son escaped.'

b. *yawara* [*ikuachi* ***yapana-n***] *karuta* *tsa* *mimira=uy*
dog yesterday **run-NMZ.S/P** bite 1SG.F son=PST1
'The dog that yesterday escaped bit my son.'

In none of the languages in my sample the existence of agentive participial orientation seems to be purely semantically motivated. The closest to that is Kamaiurá with its tripartite system, where the opposition between agentive and passive participles might be regarded as a manifestation of the opposition between active and inactive participants (the forms relativizing S participants being in between), see Section 3.3.1. In the other four languages, the development of agentive participles has arguably been motivated by other factors.

First, its occurrence can be a result of a tense-aspect based split ergativity. In Matsés (Pano-Tacanan > Panoan; Brazil, Peru), the suffix *-quid* is used to create forms which are oriented towards either S or A participant in present or generic contexts. On the other hand, in the recent past tense the same forms switch to the ergative alignment, i.e. confine their orientation to A participants. Since this kind of split pattern in connection to participial orientation appears relevant for the motivation of absolutive (S/P) participles in a larger number of languages, it will be discussed further in the next section. The resulting distribution observed in Matsés is presented in Table 5:

Table 5. Participial markers for relativizing core participants in Matsés (based on Fleck 2003: 316)

Relativized participant	Present or Generic	Recent Past (Inferential evidentiality)
A	***-quid***	***-quid***
S	***-quid***	*-aid*
P	*-aid*	*-aid*

In Matsés, ergative-absolutive alignment is relevant for other syntactic domains as well. As shown in examples (69a) and (69b) below, the case-marking of nouns follows the ergative-absolutive pattern:

(69) Matsés (Pano-Tacanan > Panoan; Brazil, Peru; Fleck 2003: 821)
a. *shupud-bëta* ***Matsés-n*** ***buid-Ø*** *codoca-quid*
rubber-COM.P **Matsés-ERG** **pitch-ABS** boil-HAB
'Matsés boil pitch together with rubber tree sap.'
b. ***utsi-Ø*** *cuëte-n* *didique-tsëc-e-c* *acte-dapa* *nantan*
other-ABS dicot.tree-LOC hang-DIM-NPST-IND river-large on
'Another small one hangs on trees on big rivers.'

Similarly, Panare (Cariban, Venezuela), which has an agentive participle in *-jpo*, has also been shown to demonstrate certain ergative-absolutive features in various parts of its grammar, see Payne & Payne (2013) for a detailed discussion.

However, even languages that do not show any other traces of the special status of A participant whatsoever, like Kokama-Kokamilla (Vallejos Yopán 2010: 584–585) or Urarina, can possess agentive participles employed exclusively for the transitive subject relativization. In Urarina, the *-era* nominalization even has to have an obligatory direct object in order for the construction to be grammatical, cf. (70):

(70) Urarina (Urarina; Peru; Olawsky 2006: 162)
[*katɛa* ***rela-era***] *eene*
man teach-NMZ.A woman
'a woman who teaches people'

It is important though, that these languages also possess participles oriented towards S/P participants, which will be discussed in more detail in the Section 3.3.5 below. I will argue that in such cases the S/P clustering is pragmatically defined, and the specialized agentive participle is rather a consequence required to cover the relativization possibilities of all the core participants.

Table 6 list the languages of the core sample featuring agentive participles, and Figure 8 shows their location on the map.

Figure 8. Agentive participles

Table 6. Languages with agentive participles

FAMILY	GENUS	LANGUAGE
SOUTH AMERICA (5/16)		
Cariban	Cariban	Panare
Pano-Tacanan	Panoan	Matsés
Tupian	Tupí-Guaraní	Kamaiurá
		Kokama-Kokamilla
Urarina	Urarina	Urarina

3.3.5. Absolutive participles

It is a well-known fact that participles traditionally labelled as "passive" can actually be oriented not only towards the direct object in a transitive construction, but also towards the only argument of an intransitive verb, cf. Haspelmath (1994). The phenomenon can be illustrated by examples from English, where past, or "passive", participles are able to be oriented both towards the object of a transitive verb, cf. (71a–b), and towards the single argument of an intransitive verb, cf. (71c–d):

(71) a. *an abused child*
b. *a murdered politician*
c. *a rotten apple*
d. *a fallen leaf*

Since this pairing of participants is parallel to that characteristic of absolutive coding in the languages with ergative-absolutive alignment, I refer to this type of participial orientation as *absolutive*, cf. Figure 9. Payne & Payne (2013: 107) also use this term to refer to this type of participles in Panare.

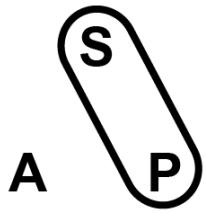


Figure 9. Orientation of absolutive participles

Many linguists have noticed, however, that the formation of such forms is subject to semantic restrictions. In particular, past participles of this type tend to have certain constraints as regards the intransitive verbs they can be formed from. These constraints have been formulated in semantic as well as syntactic terms. According to Bresnan (1982: 30), for instance, past participles can only be formed from intransitive verbs when the subject of the intransitive verb has the semantic role theme, and not agent, and it undergoes the change of state specified by the verb, as in *a fallen leaf*, *a collapsed lung*, *a lapsed Catholic*, or *a failed writer*. If, on the other hand, the subject of the intransitive verb is an agent, the formation of a corresponding participle is impossible, compare **a worked clerk*, **a run athelete*, or **a danced girl*.

Haspelmath (1994: 159–161) regards these forms as *resultative* participles, since P and S_P participants can be usually characterized by means of a state resulting from the event in which they participated, see examples above. According to Haspelmath, resultative participles are semantically most natural, because they are typically oriented towards the patient, which is a semantic notion in its essence. Passive participles, on the other hand,

are syntacticized to a considerable extent, since they exhibit orientation towards the direct object, a participant defined in purely syntactic terms. Haspelmath claims that semantics-based resultative participles are primary to syntax-based passive participles, based on the comparative analysis of Indo-European languages. Pure passive participles are characteristic for Modern Russian, cf. *ubi-t-yj* 'kill-PTCP.PST.PASS-M.NOM.SG', and were attested in Latin, cf. *scrip-t-us* 'write-PTCP.PST.PASS-M.NOM.SG', but comparative evidence shows that this *-t-* passive form used to be a resultative participle in Proto-Indo-European. For instance, its Old Indic cognate *-tá* could attach to intransitive verbs to form resultative participles, cf. Vedic *ga-tá-* 'gone', *mr-tá-* 'dead, lit. died', and Sanskrit *bhuk-ta-* 'having eaten', *pi-ta-* 'having drunk'.

The orientation of resultative participles, however, is not always restricted to the patient. Haspelmath himself shows that in German the resultative participle can also characterize the agent of the situation. The crucial requirement in such cases is *telicity*, i.e. an agentive verb can form a resultative participle only if it is telic, compare the grammatical construction in (72a) where the verb *tanzen* 'to dance' is used for directed motion, to the ungrammatical example (72b) where it refers to the manner of motion:

(72) German (Indo-European > Germanic; Germany; Haspelmath 1994: 160)
a. *der* [*in einer Minute über den Hof* ***getanzte***] *Junge*
the in one minute across the courtyard **dance.PTCP.PST** boy
'the boy who danced across the courtyard in one minute'
b. **der* [*eine Minute lang* ***getanzte***] *Junge*
the one minute long dance.PTCP.PST boy
'the boy who danced for one minute'

Indeed, the majority of participles demonstrating S/P orientation in my sample exhibit very similar aspectual characteristics. All the Indo-European languages possessing participles of this type (Albanian, Armenian, Irish, German, Modern Greek, and Italian), Beng (Eastern Mande; Côte d'Ivoire; Paperno 2006), and Panare (Cariban, Venezuela; Payne & Payne 2013) have resultative participles[17]. Absolutive participles in Mochica (Mochica; Peru; Adelaar 2004) and Tarma Quechua (Quechua, Peru; Adelaar 2011) are reported to refer to "accomplished events", and respective forms in Uralic languages (Erzya Mordvin and Hungarian), Basque (Basque; Spain; Hualde & Ortiz de Urbina 2003), Georgian (Kartvelian; Georgia; Hewitt 1995), and Tsafiki (Barbacoan; Ecuador; Dickinson 2002) are classified as perfective.

The observed tendency is parallel to a well-known connection between perfectivity and ergativity, cf. DeLancey (1981, 1982), which is a not uncommonly manifested in the alignment systems of various languages. It has been shown in numerous studies that this

[17] Apparently, Kayardild (Tangkic; Australia) also has absolutive resultative participles, but their only relative uses reported by Evans (1995) are the instances of P relativization, not S. However, when employed in independent sentences, the same forms demonstrate ergativity in their argument marking, i.e. require nominative marking on S and P participants, which is a unique context in Kayardild, cf. Evans (1995: 476–477). Due to the insufficiency of information on this matter, I will not further discuss the orientation of resultative participles in Kayardild.

type of alignment in independent clauses can actually have constructions involving participles or nominalizations as its source, cf. DeLancey (1986) and Noonan (1997) for Sino-Tibetan, and Gildea (1998) for Cariban. Therefore, it is exactly the absolutive orientation of participles/nominalizations that needs to be explained in the first place for the undestanding of this phenomenon.

Although resultative/perfective forms are most common among participles exhibiting absolutive orientation, forms with other aspectual characteristics are attested as well. For instance, the two absolutive participles in Koryak form a future vs. non-future opposition. The form in *-lqəl-* can be used to relativize both S participants, cf. (73a), and P participants, cf. (73b):

(73) Koryak (Northern Chukotko-Kamchatkan; Russia; Kurebito 2011: 28–29)
a. *əccaj-Ø* [*jaja-k* ***ŋajqətva-jo-lqəl-Ø***] *pəce*
ant-ABS.SG house-LOC clean-NMZ-NOMFUT-ABS.SG first
ajm-e-Ø
go.to.fetch.water-PFV-3SG.S
'The ant who is supposed to clean at home has gone for water.'
b. *kalikal* [***akmec-co-lqəl-Ø***]
book.ABS.SG buy-NMZ-NOMFUT-ABS.SG
'the book which someone intends to buy'

Since Koryak exhibits ergativity in other morphosyntactic domains as well, namely it demonstrates ergative alignment in nominal coding, it might be assumed that absolutive orientation in this case is best regarded as yet another manifestation of the inclination towards ergativity. The absolutive orientation in non-perfective participles, nevertheless, is not exclusive for ergative languages. In Urarina, a nominative-accusative language, the form in *-i* can also be regarded as an absolutive participle, see example (74a) for an illustration of S relativization, and (74b) for an illustration of P relativization:

(74) Urarina (Urarina; Peru; Olawsky 2006:)
a. [*kʉ* ***ne-rehete-kur-i***] *katɛa-ɨrʉ*
there **be-HAB-NMZ.S/P** man-PL
'the people who used to live here'
b. [*ii raj kiitɛa* ***te-j***] *anofwa presta-ɨ*
2SG for 1SG.EMPH **give-NMZ.S/P** knife lend-IMP
'Lend me the knife that I gave to you.'

The same situation, i.e. non-perfective absolutive forms in a nominative-accusative language, is also observed in Kokama-Kokamilla (Tupian > Tupí-Guaraní; Peru; Vallejos Yopán 2010). Interestingly, these two cases clearly contradict Dixon's (1979) and Kazenin's (1994) earlier observations that syntactic ergativity cannot coexist with accusativity in morphology. This, however, is not a very strong contradiction, since relativization has been shown to be the domain that is most likely to be ergative in a split ergative system (if compared to coordinate constructions and sentences with purposive clauses, cf. Kazenin 1994).

A special case of preference for absolutive participial orientation can be found in Georgian and Northern Khanty. Both languages possess several participles demonstrating different participial orientation, but in both of them there is only one negative participle, and its orientation is absolutive. In Georgian, the paradigm of affirmative participial forms includes the active participle *m-V(-el)* with unspecified temporal meaning (Hewitt 1995: 430), the passive future participle *sa-V(-el)* (Hewitt 1995: 432), and the absolutive perfective participle *-ul*/*-il*/*m-V-ar* (Hewitt 1995: 433). The privative participle *u-V(-el)* can be regarded as a negative counterpart of the last one, since it commonly has a perfective meaning of 'not having V-ed' for intransitive verbs or 'not having been V-ed' for transitive verbs. However, it can also be used to negate the future participle in its modal meaning, resulting in the forms meaning 'un-V-able' (Hewitt 1995: 433), while the active participle cannot be negated at all. Therefore, in the situation when the negative participial paradigm is more restricted than the affirmative, Georgian limits itself to the absolutive negative participle as presumably the most relevant one.

In Northern Khanty, the situation is even more illustrative. The two affirmative participles in the language are contextually oriented and differ in their tense characteristics, one being used to refer to past and the other to non-past events. The negative participle *-li*, on the other hand, is neutral with respect to temporal and aspectual characteristics, but its orientation is restricted to intransitive subjects, cf. (75a), and transitive objects, (75b):

(75) Northern Khanty (Uralic > Ugric; Russia; Nikolaeva 1999: 34)

a. [*peːjal-ti* ***xoːs-li***] *ńaːwreːm* *il* *suːwil-ə-ti* *pit-ə-s*
swim-INF can-PTCP.NEG child down drown-EP-INF start-EP-PST.3SG
'A child who could not swim started drowning.'

b. [***joːnt-li***] *jeːrnas* *śuŋ-na* *xuːj-ə-l*
sew-PTCP.NEG dress corner-LOC lie-EP-NONPST.3SG
'A dress which someone did not finish sewing lies in the corner.'

Thus, the absolutive orientation appears to be visible even in the language that otherwise does not employ any inherently oriented forms.

Based on the data presented above, and in particular on the cases of negative participles in Georgian and Northern Khanty, I suggest that the absolutive participial orientation should be explained in pragmatic rather than structural or semantic terms. The explanation is, therefore, related to the Absolutive Hypothesis introduced in Fox (1987). It has been shown in this and further studies that S and P relativization has a special discourse function of introducing new participants, and it is most frequent in the corpora of various languages, cf. Fox & Thompson (1990), Krapivina (2007), Schmidtke-Bode (2012). S and P are, therefore, the most relativized participants, so especially if a language has only one participial form (or only one negative participial form, like Northern Khanty), the combination of these two roles happens to be most efficient.

This hypothesis is further supported by the fact that absolutive orientation can be attested in a language with very poor morphology, whose participial forms are on a very early stage of development. Ndyuka, a creole spoken in French Guiana and Suriname, has

forms that are regularly derived from verbs via reduplication and can function as adnominal modifiers, compare the two sentences in (76):

(76) Ndyuka (Creole; French Guiana, Suriname; Huttar & Huttar 1994: 537)
a. *A bai wan dagu*
3SG buy a dog
'She bought a dog.'
b. ***Baibai*** *dagu ná abi gwenti*
buy-buy dog NEG have custom
'Bought dogs never get used to you.'

According to Huttar & Huttar (1994: 543), who refer to these forms as "participles", they can be derived both from transitive verbs as in the example above, and intransitive verbs, thus behaving as absolutive participles in other languages. These forms, however, seem to be unable to take any dependents, and are, therefore, rather verbal adjectives than participles (see Section 2.3 on the differences), but their orientation, nevertheless, is noteworthy in the context of the present discussion. A creole is a language that builds its grammar "from scratch". It can, therefore, be expected that it will first develop the most pragmatically valuable constructions.

The absolutive orientation can also sometimes appear as a tendency rather than a strict rule. In Ket, for instance, action nominals used for non-finite relative clause formation are contextually oriented, i.e. in principle, they can freely relativize S, P and A participants. If the corresponding verb is intransitive, it is inevitably the S participant that is relativized. However, if the verb is transitive, the default interpretation of the modified noun is as a P participant, cf. (77a). The interpretation as an A participant is only possible if the head noun is highly agentive, cf. (77b), but the only way to make it really natural is to overtly express the P participant in the relative clause, cf. (77c):

(77) Ket (Yeniseian; Russia; Nefedov 2012: 199)
a. *tàrʲ tīp*
[*tàd*] *tīb*
hit.ANOM dog
'a beaten dog'
b. *tàrʲ kɛˀt*
[*tàd*] *keˀd*
hit.ANOM person
'a beaten man'/'a man who is/was beating'
c. *tīp tàrʲ kɛˀt*
[*tīb tàd*] *keˀd*
dog hit.ANOM person
'a man who was beating his dog'

In Hinuq, most participles (except for the locative participle), are contextually oriented, and they can relativize a wide range of participants, including locatives and possessors. The resultative participle in *-s* also has this type of wide relativizing capacity, but,

according to Forker (2013: 570), in the majority of cases it is formed from intransitive verbs, or transtive verbs lacking an overt agent. Consequently, it is mostly used to relativize S and P participants, cf. (78a) and (78b):

(78) Hinuq (Nakh-Daghestanian > Avar-Andic-Tsezic, Russia; Forker 2013: 570–571)

a. *Ibrahim-ez r-ik-o hayłu-s rorbe* [*hezzo-r*
Ibrahim-DAT V-see-PRS she.OBL-GEN$_1$ leg.PL back-LAT
r-uti-š]
NHPL-turn-PTCP.RES
'Ibrahim sees their legs, which were turned around.'

b. *de goł hažilaw ʔisa-s uži ʔali,* [*Ø-u:-s ʔazal ʔač'ino*
I be Isaew Isa-GEN$_1$ son(I) Ali I-do-PTCP.RES 1000 nine
bišonno q'ono quno oc'eno łono eƛa ƛeba-ł Čačan-ƛ'o
100 two twenty ten three ord year.OBL-CNT Chechnya-SPR
Erseni aƛ-a]
Erseni village-IN
'I am Isa Isaew's son Ali, born in the year 1953, in Chechnya, in the village of Erseni.'

All in all, participles demonstrating strict absolutive orientation are attested in 20 languages in my sample (see Table 7 and Figure 10 below). 16 of them typically refer to accomplished events (resultative or perfective participles), while four exhibit other aspectual properties. Various phenomena can be seen as supporting the pragmatic explanation of the participial orientation. It, however, remains an open question if this explanation and the preference for perfectivity can be linked with each other in terms of motivation.

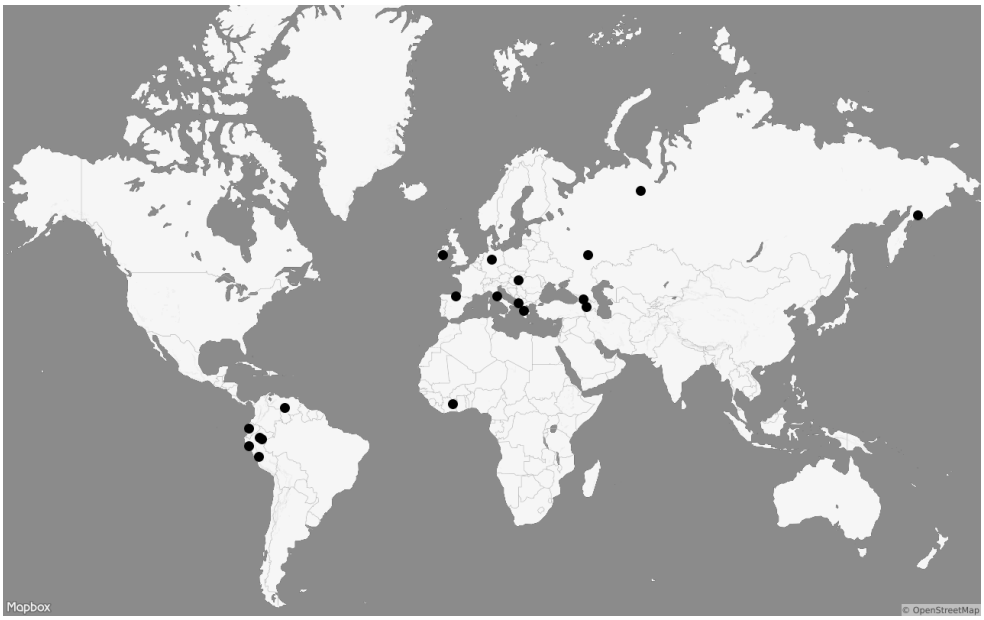


Figure 10. Absolutive participles

Table 7. Languages with absolutive participles

FAMILY	GENUS	LANGUAGE
SOUTH AMERICA (6/16)		
Barbacoan	Barbacoan	Tsafiki
Cariban	Cariban	Panare
Mochica	Mochica	Mochica
Quechuan	Quechuan	Tarma Quechua
Tupian	Tupí-Guaraní	Kokama-Kokamilla
Urarina	Urarina	Urarina
AFRICA (1/12)		
Mande	Eastern Mande	Beng
EURASIA (12/47)		
Basque	Basque	Basque
Chukotko-Kamchatkan	Northern Chukotko-Kamchatkan	Koryak
Indo-European	Albanian	Albanian
	Armenian	Armenian
	Celtic	Irish
	Germanic	German
	Greek	Modern Greek
	Romance	Italian
Kartvelian	Kartvelian	Georgian
Uralic	Mordvin	Erzya
	Ugric	Hungarian, Northern Khanty

3.4. Orientation towards non-core participants

Although most cross-linguistically common inherently oriented participles are oriented towards core participants of the situation (see active, agentive, passive and absolutive participles discussed above), there also exist specialized participial forms for relativizing other positions of the Accessibility Hierarchy as well. For instance, Muna employs the marker *-ha* to relativize locatives, i.e. makes use of *locative participles*, cf. (79):

(79) Muna (Austronesian > Celebic; Indonesia; van den Berg 2013: 236)
naando fato-ghonu sikola [***ka-fo-fo-guru-ha-ku*** *wamba*
be four-CL school NMZ-DETR-CAUS-learn-LOC-my language
Inggirisi welo se-minggu]
English in one-week
'There were four schools where I taught English in one week.'

Judging from the available language data, forms like this one can refer to any location irrespective of its role in the situation. It is the context that further specifies what participant is being relativized, as illustrated by the examples from Warihio, where the form in *-ači* can relativize a location, cf. (80a), or a source, cf. (80b):

(80) Warihio (Uto-Aztecan > Tarahumaran; Mexico; Félix Armendáriz 2005: 97)
a. *kahóni* [*no'ó* *katewe-ri-**áči*** *anío*]
box 1SG.NS keep-PFV-NMZ.LOC ring
'the box where I kept the ring'
b. *kahóni* [*no'ó* *mačipa-ri-**áči*** *anío*]
box 1SG.NS take.out-PFV-NMZ.LOC ring
'the box that I took the ring out of'

Other non-finite verb forms that specialize in relativizing locatives include the local participle in *-a* in Hinuq, cf. (84a) below (Nakh-Daghestanian > Avar-Andic-Tsezic; Russia; Forker 2013: 257–258), and the form in *-tupa* in Kokama-Kokamilla (Tupian > Tupí-Guaraní; Peru; Vallejos Yopán 2010: 595–598). Nevome (Uto-Aztecan > Tepiman; Mexico; Shaul 1986: 46–48) is seemingly able to employ a whole a set of locative nominalization markers for relative clause formation, *-cami* being used in present contexts, *-carhami* in habitual contexts, *-parhami* referring to the past, and *-aicami* to the future. Unfortunately, the data on the matter is too scarce to present any consistent description of these constructions.

In addition to locative participles, some languages exhibit verb forms whose relativization potential is limited to instruments, that is *instrumental participles*. Probably the clearest example of this is the form in *-nanɨ* in the Apatani language, cf. (81):

(81) Apatani (Sino-Tibetan > Tani; India; Abraham 1985: 133)
[*nɨka* ***paninani***] *ilyo* *mi* *mó* *bɨtɨ*
I.GEN cut.NMZ.INS sword ACC he bring.PST
'He brought the sword with which I cut.'

Another Sino-Tibetan language that has instrumental participial relative clauses is Qiang. In some varieties, such as Ronghong or Qugu, the nominalizer *-s-*/*-sa-* is also used for relativization of other non-core participants as well (see Huang 2008: 743), but at least in Muka Qiang instrumental relativization is the only possibility, cf. (82):

(82) Muka (Southern) Qiang (Sino-Tibetan > Qiangic; China; Huang 2008: 745)
[*zedə* ***se-sa***] *tɕi-to* *balubase*
book write-NMZ.INS that-CL thing
'the thing that is used to write with'

In Ma'di, the *-dʒɔ́* form also functions primarily as an instrumental relativizer, although the relativized participant can be interpreted as the reason as well, cf. (83a). According to Blackings & Fabb (2003: 203), the range of meanings of the noun modified by the *-dʒɔ́* form is similar to that of the complement of the postposition *sɨ̀* associated with source, cf.

(83b). It is interesting though, that this 'instrumental' participle is extending its orientation beyond the possibilities of the postposition. For instance, it can be used to modify some nouns with a generic meaning, such as 'way', cf. (83c), or 'time', cf. (83d). In contrast to the use of the postposition in simple clauses, the context of a relative clause makes the interpretation easy and unambiguous, and therefore, the participle is able to function in a wider range of contexts.

(83) Ma'di (Central Sudanic > Moru-Ma'di; Sudan, Uganda; Blackings & Fabb 2003: 204–205, 369)

a. *ílí* [*ágɔ́ rɨ̀ nī* ***ɓ̀lī-dʒɔ́***] *rɨ̀ lɔ́tʃī rɨ̀ ʔī*
knife man DEF PRON NPST.cut-SR DEF sharp DEF FOC
'The knife with/for which the man was cut was the sharp one.'

b. *ō-lī ílí nā* ***sì***
3-cut knife AFR SRC
'He cut it with/because of his/her knife.'

c. *ɔ̀vī*[*ānā́-à* ***sī-dʒɔ́***] *rɨ̀ bá nì-bá rá nā gà*
way 3SG-POSS NPST.build-SR DEF people NPST.know-SR AFF AFR small
'How she built it is known only to a few people.'

d. *sáà* [***sī-dʒɔ́***] *rɨ̀ bá nì-bá rá nā gà*
time NPST.build-SR DEF people NPST.know-SR AFF AFR small
'Only a few people know about the time it was built.'

The uses of the type illustrated in (83c) and (83d) bring the Ma'di instrumental participle closer to another class of forms, namely those exhibiting contextual orientation within a range of possibilities limited to non-core or non-subject participants. I will discuss these forms in detail in Section 3.5.2.

It is important to mention that most of the forms in my sample that from a comparative perspective qualify as participles inherently oriented towards a particular peripheral participant (instrumental or locative) are considered participant nominalizations by the authors of respective grammars. The only notable exception where such form is labelled as a "local participle" is Hinuq, but even there, according to Forker (2013: 257), these forms only occasionally appear with a modified noun, cf. (84a), primarily functioning in headless relative constructions, cf. (84b):

(84) Hinuq (Nakh-Daghestanian > Avar-Andic-Tsezic; Russia; Forker 2013: 253, 258)

a. [*eli xalq'i b-iči-ya*] ***moč-a*** *zoq^{w}e-s goł,*
we.GEN$_1$ people HPL-be-PTCP.LOC place.OBL-IN be-RES be
b-^{ʔ}eži obšestwo rik'zi.b.u:-ho zoq^{w}e-s goł
HPL-big society count.HPL-CVB.IPFV be-RES be
'In the place where our people lived, there was a big society.'

b. *zurmaqan* [*buq* *b-oƛex-a-do*] *q'iliqan* [*buq*
zurna.player sun(III) III-appear-PTCP.LOC-DIR drummer sun(III)
b-iƛ'i-ya-do] *b-eze-n* *b-iƛ'i-š=eƛ*
III-go-PTCP.LOC-DIR HPL-look-CVB.NARR HPL-go-PST=NARR
'The zurna player went into the direction of the rising sun, the drummer went into the direction of the setting sun.'

Inherently oriented forms used to relativize peripheral participants are, therefore, fairly nouny in their nature, whereas participles oriented towards core participant do not usually exhibit this type of syncretism.

As can be seen from the above, among the positions featured in the Accessibility Hierarchy, only the possessor does not have any participles specifically employed for its relativization. This is indeed very natural, since participles as verb forms are expected to be oriented towards clausal participants, while possessors are nominal dependents in their essence. All types of verbal dependents, on the other hand, can in principle be targets of inherent participial orientation. Table 8 and Figure 11 give information on participles oriented towards non-core participants attested in the languages of the sample.

Figure 11. Participles oriented towards non-core participants
● *Instrument* ■ *Locative* ▲*Several participants*

Table 8. Languages with participles oriented towards non-core participants

FAMILY	GENUS	LANGUAGE	PARTICIPANTS
PAPUNESIA (1/7)			
Austronesian	Celebic	Muna	Locative
NORTH AMERICA (2/13)			
Uto-Aztecan	Tarahumaran	Warihio	Locative
	Tepiman	Nevome	Locative
SOUTH AMERICA (2/16)			
Barbacoan	Barbacoan	Tsafiki	Several
Tupian	Tupí-Guaraní	Kokama-Kokamilla	Locative
AFRICA (1/12)			
Central Sudanic	Moru-Ma'di	Ma'di	Several
EURASIA (3/47)			
Nakh-Daghestanian	Avar-Andic-Tsezic	Hinuq	Locative
Sino-Tibetan	Qiangic	Qiang	Instrument
	Tani	Apatani	Instrument

3.5. Contextual orientation

As defined in Section 3.1, *contextually oriented participles* are forms that can relativize several different participants of the situation depending on the context. The main parameter according to which such forms can differ across languages is the range of participants they can relativize. In this section, I will distinguish between *full contextual orientation* (Section 3.5.1) and *limited contextual orientation* (Section 3.5.2). It is important to emphasize that the term full contextual orientation does not mean that a certain form has no restrictions whatsoever as to which participants it can relativize, but rather that it does not have such restrictions in the higher part of the Accessibility Hierarchy. In other words, forms demonstrating full contextual orientation are always able to relativize at least all of the core participants (A, S, and P). On the contrary, forms demonstrating limited contextual orientation are unable to relativize some or all of the core participants, but otherwise they can still be oriented towards several different participants of the situation depending on the context. Further clarifications and examples will be provided in the respective sections.

3.5.1. Full contextual orientation

In most cases, the range of participants relativizable by a certain contextually oriented participial form can be represented as a continuous segment of the Accessibility Hierarchy starting from its left end, cf. (85)[18]:

(85) Subject > Direct Object > Indirect Object > Oblique > Possessor

Since, according to the definition, contextually oriented participles have to be able to relativize at least all of the core participants (Subject and Direct Object in this representation), there can be four major types of such forms with respect to their relativization capacity: (1) Subjects and Direct Objects, (2) from Subjects to Indirect Objects, (3) from Subjects to Obliques, and (4) from Subjects to Possessors. All of these types are indeed attested among the languages of the sample, although they are not equally common.

Contextually oriented participles of the first type can be found in Chimariko, where dependent forms in *-rop/-rot/-lop/-lot* are able to relativize subjects and direct objects, cf. example (86a) for subject relativization, and (86b) for direct object relativization[19]:

(86) Chimariko (Chimariko; United States; Jany 2008: 42)
a. [*moʔa* *pʰuncar* *h-uwa-tku-rop*] *pʰaʔyi-nip*
yesterday woman 3-go-DIR-DEP thus.say
'That woman who came yesterday told me.'
b. [*čʰeʔnew* *y-ewu-rop*] *hačmukčʰa* *čʰ-awu-n*
bread 1SG.A-give-DEP axe 1SG.P-give-ASP
'For the bread I gave him, he gave me an axe.'

Another example of this type comes from Yimas, where negative non-finite relative forms in *-kakan* can be interpreted as relativizing either subjects or direct objects, hence the ambiguity illustrated in the example (87):

(87) Yimas (Lower Sepik-Ramu > Lower Sepik; Papua New Guinea; Foley 1991: 407)
wakn *na-mpu-ŋa-tkam-t* [*namat* *tu-kakan-Ø*]
snake(CL5.SG) CL5.SG.T-3PL.A-1SG-show-PFV person(CL1.PL) kill-without-CL5.SG
'1. They showed me the snake that doesn't kill people.
2. They showed me the snake that people don't kill.'

---

[18] In the version of the Accessibility Hierarchy used in this section I do not distinguish between transitive subjects (A) and intransitive subjects (S), since this opposition is mostly irrelevant for contextually oriented participles. It should also be noted that in some languages, participles can have wider relativization capacity than presented here, because the grammatical descriptions might simply lack relevant examples for some non-core participants, such as, for instance, locatives and possessors.

[19] It should be noted though, that Chimariko is an extinct language, for which only a limited amount of data is available. It is, therefore, possible, that the relativizing capacity of the forms in question used to be wider.

The *-kakan* forms in Yimas are, therefore, very close to the negative participles in *-maton* in Finnish, which serve as negative counterparts for both active and passive participles. However, the *-maton* forms, similarly to passive participles in some other languages, fairly often extend their orientation towards certain peripheral participants, such as locatives (e.g. *asumaton saari* 'uninhabited island', see also Section 3.3.3 on this matter). It seems, therefore, that in general, if a given form is able to relativize all of the core participants, it is usually capable of relativizing other positions of the Accessibility Hierarchy.

The second type can be illustrated by the contextually oriented nominalization in Apatani, which is used to relativize subjects, direct objects, and datives, as shown earlier in Section 3.2, cf. example (50). It is important to note in this connection that Apatani also has a separate nominalization specializing on instrumental relativization, as shown in example (81). At least one lower position on the Accessibility Hierarchy is, therefore, "taken" by a different form, so it is fairly natural that the contextually oriented participle does not spread down the Accessibility Hierarchy. The only other language in my sample that presumably demonstrates the same type of contextual orientation is Wappo (Yuki-Wappo > Wappo; United States; Thompson et al. 2006). However, the restrictions on the range of relativizable participants are not explicitly discussed in the grammar of the language. Thus, it is possible to conclude that contextually oriented forms limited in their relativizing capacity to subjects, direct objects and indirect objects are not very common either.

As it is clear from the discussion above, most contextually oriented participles are able to relativize a broad range of positions on the Accessibility Hierarchy. Illustrations of such forms have already been provided, see, for instance, examples in (2) for Kalmyk (Mongolic; Russia; personal field notes), or examples in (48) for Lezgian (Nakh-Daghestanian > Lezgic; Russia; Haspelmath 1993). If we only take into account the internal relativizing capacity of participles (excluding their ability to relativize a possessor provided by resumptive pronouns, see Section 3.6.2), most of the forms in my sample are able to relativize the positions on the Accessibility Hierarchy down to the obliques. However, the participants encoded as obliques are not equal as to how easily they can be relativized in different languages. In many languages, the limits for contextual orientation of participles are determined by the properties of the verbs from which the participles are derived. For instance, Mal'čukov (2008: 218) reports for Even that the participial gap strategy can only be employed if the relativized participant belongs to the valency of the verb, hence the impossibility of the locative relativization *d'ep-teng-u d'u* eat-PTCP.PST-POSS.1SG 'the house where I ate', or the instrument relativization *xör-deng-u kingne* go.away-PTCP.PST-POSS.1SG 'the skis on which I went away'. I will further refer to this restriction as the *valency rule*.

Nikolaeva (2014: 326) describes a similar tendency for Tundra Nenets, where it is possible to relativize the object of a postposition if the modifying verb is frequently collocated with the respective postpositional phrase. Under this rule, for example, the relativization of the postpositional phrase headed by the postposition *n'amna* 'about' is perfectly fine with the verb *yi-yader* 'to think' but unacceptable or very marginal with the verbs *xinoq-* 'to sing' or *tolaŋo-* 'to read'. With both types of verbs, the postpositional phrase headed by *n'amna* is totally acceptable in independent sentences, but while with

the verb ‘to think’ the oblique object is virtually obligatory, referring to singing or reading usually does not require specifying the content of the song or the reading material.

Contextual relativization is, therefore, commonly regulated by pragmatics. When the head noun is not represented overtly within the relative clause introduced by a contextually oriented participle, the relation between the relative clause and the head noun remains underspecified. For instance, the relative construction of the type [*cat*$_S$ *sit*$_{PTCP}$] *table* can mean ‘the table **on** which the cat is sitting’, ‘the table **at** which the cat is sitting’, ‘the table **under** which the cat is sitting’, etc. Accessibility to relativization in such cases commonly depends on how easy it is to reconstruct the relation between the verbal form and the relativized noun. As a result, it is commonly not possible to relativize any objects of postpositions with some specific meaning. However, simple locations and similar participants are comparatively easy to relativize.

Interestingly, this rule works to a certain extent even in the languages that mainly favour inherent orientation in their participial systems. The possible slight extension of the orientation of passive participle also relies on the frequency of collocation and the recoverability of the relativized participant, see Section 3.3.3. As a result, the Finnish negative participle in *-maton*, for instance, is very similar in its orientation to the forms attested in Even or Tundra Nenets. Structurally, it is the counterpart of active and passive participles. However, apart from relativizing the core participants, cf. (88a), (88b) and (88c) for S, A and P relativization respectively, it can also relativize at least locatives, cf. (88d), and temporal adverbials, cf. (88e):

(88) Finnish (Uralic > Finnic; Finland; personal knowledge)
a. [*koskaan kuole-maton*] *rakkaus*
never die-PTCP.NEG love
‘love that never dies’
b. [*loppututkinto-a suoritta-maton*] *hakija*
final.degree-PTV complete-PTCP.NEG applicant
‘the applicant that did not complete the final degree’
c. [*kenen-kään tietä-mätön*] *määrä*
who.GEN-CLT know-PTCP.NEG amount
‘the amount that nobody knows’
d. [*lähes istu-maton*] *vuodesohva*
almost sit-PTCP.NEG sofa
‘the sofa that almost was not sat on’
e. [*täysin syö-mätön*] *päivä*
fully eat-PTCP.NEG day
‘the day when (someone) did not eat at all’

The example (88e) above from Finnish illustrates an interesting cross-linguistic tendency. Even in languages that follow the valency rule in relativization, temporal adverbials can often be relativized, although in many cases they clearly do not belong to the set of obligatory arguments. Malchukov (1995) proposes to account for this exception by making an assumption that temporal noun phrases in these languages actually count as

arguments. He also points out the fact that this assumption is independently required for lexicological reasons, according to Plungian & Raxilina (1990).

As expected based on the Accessibility Hierarchy, possessors are the most problematic participants for relativization. If a language uses internally headed participial clauses to relativize a possessor, no special means are usually needed to ensure its recoverability. Both the possessor and the possessum occur within the relative clause, and the relation between them is clearly indicated in the construction, cf. example (89) from Nanga:

(89) Nanga (Dogon, Mali; Heath, ms.: 286–287)
[*àrnà* *nàŋá* *sà:dì-sè*] *bû:*
man.L cow die.without.slaughter-PTCP.PFV.L DEF.AN.PL
'the men whose cow died (naturally)'

On the other hand, if a language with externally headed relative clauses employs participles for relativizing possessors, this is usually done by means of resumptive pronouns, see Section 3.6.2 for the discussion. However, in certain languages, the participial gap strategy is also available for possessor relativization, see example (90) from Korean (notice though that the resumptive pronoun *casinuy* is still possible in this context):

(90) Korean (Koreanic > Korean; South Korea, North Korea; Shin 2003: 33)
[*(casin-uy)* *cha-ka* *kocangna-n*] Peter
oneself-of car-NOM broke-REL Peter
'Peter whose own car broke down'

In several languages of the sample, the participial gap strategy allows to relativize possessors in the situation of inalienable possession, but not in the situation of alienable possession. For instance, in Ingush, it is only possible to relativize the possessor of a kin term, cf. (91a), or the possessor of a body part, cf. (91b). Other type of possessors are not, however, relativizable, see the ungrammaticality of (91c):

(91) Ingush (Nakh-Daghestanian > Nakh; Russia; Nichols 2011: 592)
a. [___ *voshaz* *suona* *axcha* *deitaa*] *sag*
GEN brother.ERG 1SG.DAT money D.give.PTCP person
'the person whose brother gave me money'
b. [*zhwalez* ___ *kyljgaa* *carjg* *tiexaa*] *sag*
dog.ERG GEN hand.DAT tooth bite.PTCP person
'the person whose hand the dog bit'
c. *[*suoga* ___ *gour* *jola*] *sag*
1SG.ALL GEN horse J.be.PTCP person
'the person whose horse I've got'

The same constraint on the relativization of possessors in the situation of alienable possession is reported at least for Malayalam (Southern Dravidian; India; Asher & Kumari 1997), and Lezgian (Nakh-Daghestanian > Lezgic; Russia; Haspelmath 1993).

Pragmatically, this constraint makes perfect sense, since the main problem with gap strategy in general is recoverability of the relaitivized participant. In case of inalienable possession, the relation between the possessor and the possessum is considerably more transparent and expectable than in case of alienable possession. This restriction can, therefore, be regarded as another modification of the valency rule discussed above.

Tables from 9a to 9d present languages that feature contextually oriented participles with different relativization capacity. The data is summarized on the map in Figure 12.

Figure 12. Contextually oriented participles (full orientation)
Relativization up to: ● *P* ■ *IO* ▲ *OBL* ★ *POSS*

Table 9a. Languages with contextually oriented participles (relativization up to P)

FAMILY	GENUS	LANGUAGE
PAPUNESIA (1/7)		
Lower Sepik-Ramu	Lower Sepik	Yimas
NORTH AMERICA (1/13)		
Chimariko	Chimariko	Chimariko
AFRICA (1/12)		
Afro-Asiatic	North Omotic	Koorete
EURASIA (1/47)		
Uralic	Saami	North Saami

Table 9b. Languages with contextually oriented participles (relativization up to IO)

FAMILY	GENUS	LANGUAGE
NORTH AMERICA (1/13)		
Yuki-Wappo	Wappo	Wappo
EURASIA (1/47)		
Sino-Tibetan	Tani	Apatani

Table 9c. Languages with contextually oriented participles (relativization up to OBL)

FAMILY	GENUS	LANGUAGE
NORTH AMERICA (1/13)		
Coahuiltecan	Coahuiltecan	Coahuilteco
SOUTH AMERICA (4/16)		
Nadahup	Nadahup	Hup
Pano-Tacanan	Panoan	Matsés
Quechuan	Quechuan	Imbabura Quechua
Tucanoan	Tucanoan	Barasano
AFRICA (1/12)		
Kadugli-Krongo	Kadugli	Krongo
EURASIA (11/47)		
Austro-Asiatic	Munda	Kharia
Dravidian	South-Central Dravidian	Telugu
	Southern Dravidian	Tamil
Indo-European	Indic	Marathi
Nivkh	Nivkh	Nivkh
Sino-Tibetan	Bodic	Manange
	Bodo-Garo	Garo
	Dhimalic	Dhimal
Uralic	Finnic	Finnish
	Permic	Besermjan Udmurt
Yeniseian	Yeniseian	Ket

Table 9d. Languages with contextually oriented participles (relativization up to POSS)

FAMILY	GENUS	LANGUAGE
AUSTRALIA (1/5)		
Pama-Nyungan	Cenral Pama-Nyungan	Pitta Pitta
PAPUNESIA (2/7)		
East Bougainville	East Bougainville	Motuna
Savosavo	Savosavo	Savosavo
NORTH AMERICA (1/13)		
Uto-Aztecan	Hopi	Hopi
SOUTH AMERICA (1/16)		
Nuclear-Macro-Ge	Ge-Kaingang	Mẽbengokre
AFRICA (1/12)		
Afro-Asiatic	Highland East Cushitic	Kambaata
	North Omotic	Sheko
Dogon	Dogon	Nanga
EURASIA (16/47)		
Dravidian	Southern Dravidian	Malayalam
Indo-European	Iranian	Apsheron Tat
Koreanic	Korean	Korean
Mongolic	Mongolic	Kalmyk
Nakh-Daghestanian	Avar-Andic-Tsezic	Hinuq
	Dargwa	Tanti Dargwa
	Lezgic	Lezgian
	Nakh	Ingush
Sino-Tibetan	Qiangic	Qiang
Turkic	Turkic	Sakha
Tungusic	Tungusic	Even, Nanai
Uralic	Mari	Meadow Mari
	Permic	Komi-Zyrian
	Samoyedic	Tundra Nenets
	Ugric	Northern Khanty
Yukaghir	Yukaghir	Kolyma Yukaghir

3.5.2. Limited contextual orientation

As shown above, in most languages possessing contextually oriented participles, these forms can be used to relativize a particular number of positions on the Accessibility Hierarchy starting from its left end, i.e. from the subject. Some languages, however, use certain participles to relativize a range of positions starting from a lower point, such as the direct object or the indirect object. In fact, one form, namely the patientive nominalization in *-aid* in Matsés (Pano-Tacanan > Panoan; Brazil, Peru; Fleck 2003) is even used in non-A relativization rather than in non-subject relativization, but this only concerns recent past contexts, see Table 5 in Section 3.3.4 and related discussion for details.

Most of the languages demonstrating limited contextual orientation can relativize all the positions on the Accessibility Hierarchy except for the subject. They are Wan (Eastern Mande; Côte d'Ivoire; Nikitina 2009), Beserman Udmurt (Uralic > Permic; Russia; Brykina & Aralova 2012), Japhug rGyalrong (Sino-Tibetan > rGyalrongic; China; Jacques 2016), Dolakha Newar (Sino-Tibetan > Mahakiranti; Nepal; Genetti 2007), Kolyma Yukaghir (Yukaghir; Russia; Maslova 2003), Maricopa (Cochimi-Yuman > Yuman; United States; Gordon 1980, 1986), Tümpisa Shoshone (Uto-Aztecan > Numic; United States; Dayley 1989), Warihio (Uto-Aztecan > Tarahumaran; Mexico; Félix Armendáriz 2005), Tariana (Inland Northern Arawakan; Brazil; Aikhenvald 2003), Aguaruna (Jivaroan; Peru; Overall 2007), and Tarma Quechua (Quechuan; Peru; Adelaar 2011). A possible example of the form with limited contextual orientation is the participle in *-əmo* in Meadow Mari, see (92a) for direct object relativization, (92b) for indirect object relativization, and (92c) and (92d) for the relativization of locatives with different semantics:

(92) Meadow Mari (Uralic > Mari; Russia; Serdobolskaya & Paperno: 5–6)

a. [*koka-m-ən* *kalas-en* ***kod-əmo***] *legend-əʒe*
aunt-POSS.1SG-GEN tell-CVB leave-PTCP legend-POSS.3SG
'the legend told by my aunt'

b. [*məj-ən* *kup* *gə-ʧ'* ***polʃ-əmo***] *ajdeme*
1SG-GEN swamp from-ABL help-PTCP man
'the man whom I helped to get out of the swamp'

c. [*mə-lam* *kaj-aʃ* ***kyl-me***] *jal* *peʃ* *toraʃte-ʒ-ak*
1SG-DAT.1SG go-INF need-PTCP village very far-POSS.3SG-EMP
ogəl
NEG.3SG
The village where I need to go is not too far.

d. [*oksa* ***kij-əme***] *kvartire* *de-ʧ'* *kl'uʧ* *mə-lam* *kyl-eʃ*
money lie-PTCP apartment near-ABL key 1SG-DAT.1SG need-PRS.3SG
'I need a key for the apartment where money is situated.'

Tundra Nenets has two sets of forms used for relativization. The forms belonging to the first set can relativize subjects and direct objects, while the others can relativize a wide range of peripheral participants, i.e. the positions of the Accessibility Hierarchy to the right of the indirect object inclusively. The forms in question are referred to by Nikolaeva

(2014) as perfective action nominal, modal converb, and imperfective action nominal. The examples below illustrate their use for the relativization of the indirect object, cf. (93a), the instrument, cf. (93b), the comitative adjunct, cf. (93c), and the time and locative adverbials, cf. (93d) and (93e) respectively:

(93) Tundra Nenets (Uralic > Samoyedic; Russia; Nikolaeva 2014: 321–325)

a. [*kniga-m* *m'is-oqma*(*-m'i*)] *xasawa* *ŋəc'ekem'i*
book-ACC give-PFV.ANOM-1SG man child.1SG
'the boy to whom I gave the book' (321)

b. [*ŋuda-m'i* *məda-qma*(*-m'i*)] *xər°-m'i*
hand-ACC.1SG cut-PFV.ANOM-1SG knife-1SG
'the knife with which I cut my hand' (324)

c. [*yil'e-s'°* / *yil'es'ə-m'i*] *n'enec'ə-m'i*
live-CVB.MOD / live.CVB.MOD-1SG person-1SG
'the person with whom I live' (324)

d. [*toxodənə-°* *xə̄-s'°*] *yal'a-doh*
study-CVB.MOD go-CVB.MOD day-3PL
'the day for them to go to study' (324)

e. [*m'ūd°-naq* *m'i-ma*] *soti°*
caravan-GEN.1PL move-IPFV.ANOM hill
'the hill over which our caravan is moving' (325)

The same type of limited contextual orientation (from Indirect Object down the Accessibility Hierarchy) is also attested in Kamaiurá (Tupí-Guaraní, Brazil; Seki 2000). The only language in my sample that has specialized participial forms specializing on the relativization of a wide variety of obliques (and possessors of obliques) is Seri (Seri; Mexico). According to Marlett (2012: 223), the form *ʔi-Ø-asi* (POSS.1-NMZ.OBL-drink) can mean '(the one) with which I drink', '(the place) where I drink', '(the way) how I drink', etc.

At first glance, the forms with limited contextual orientation might seem to contradict the formulation of the Accessibility Hierarchy, since they allow the relativization of lower positions (e.g. obliques) without being able to relativize higher positions (e.g. subjects). However, what Keenan & Comrie (1977) actually claim is that this rule should be true for a given relativization strategy rather than for any single form, and all the forms discussed in this section belong to participial systems where some other non-finite forms specialize on relativizing the higher part of the Accessibility Hierarchy. Therefore, all of these languages comply with the general rule. The only possible exception is Wan (Eastern Mande; Côte d'Ivoire), where the attributive nominalization in *-ŋ*, which is the only nominalized form used for relativization, has limited contextual orientation starting from the direct object. Nevertheless, in Wan all the contexts where we could expect subject (S or A) relativization are covered by an agent nominalization, which cannot be used for adnominal modification (Tatiana Nikitina, p.c.). Keenan & Comrie's (1977) generalization, thus, holds in the case of Wan as well, at least to a certain extent.

As a side observation, it is interesting to note that the limits of contextual orientation can be a pragmatic consequence of expressing a certain category within the participial

form. In Matsés (Pano-Tacanan > Panoan; Brazil, Peru), TAM-coding participant nominalizations, which are one of the primary means for relativizing a very wide range of core and peripheral participants, can express two evidentiality values, experiential and inferential. As reported in Fleck (2003: 306), the referent of the experiential nominalization (and, presumably, also the modified participant, although Fleck actually does not make an explicit claim about this) may be tangible or intangible, and witnessed with any of the five senses. With the inferential nominalizers, there is a further restriction that the participant being referred to (or, conceivably, modified) must have some persisting, detectable, resulting mark that allows the speaker to infer the event without having seen the actual event. This condition excludes some entities as potential referents of inferential nominalizations, such as visibly unaffected participants, and, therefore, imposes restricitions on the contextual orientation of the forms. The difference between the two types of nominalizations in Matsés is illustrated in (94), where examples (a) and (c) show experiential nominalizations, and examples (b) and (d) show inferential nominalizations. For an example of an actual relative clause introduced by a TAM-coding participant nominalization see sentence (135) in Section 5.2.5.

(94) Matsés (Pano-Tacanan > Panoan; Brazil, Peru; Fleck 2003: 306)

a. *cues-boed*
hit/kill-NMZ.PST.EXP
'person/animal who did the hitting/killing'

'dead person/animal'
'wounded or unwounded person/animal'
'wound'
'weapon used'

b. *cues-aid*
hit/kill-NMZ.PST.INFR
*'person/animal who did the killing'
'dead person/animal'
'wounded person/animal'
'wound'
'bloody weapon'

c. *titinque-ondaid*
run-NMZ.PST.EXP
'person/animal who ran'
'old footprints'
'path (where speaker saw S running)'

d. *titinque-nëdaid*
run-NMZ.PST.INFR
*'person/animal who ran'
'old footprints'
'path (with old footprints)'

As a result of the outlined condition, Matsés inferential nominalizations tend to exhibit limited contextual orientation of the non-A type, since agents are typically not affected by the situation they take part in. This is, however, a very marginal case specific to a particular language and, therefore, it is not relevant for the general typology of participial forms.

The orientation of a given participle can also depend on the type of relative construction it is used in. In Imbabura Quechua (Quechuan; Ecuador; Cole 1985), all the nominalized predicates of externally headed relative clauses are purely contextually oriented, and the choice is determined by the tense of the relative clause. The suffix *-shka* is used for all kinds of past events, *-j* for the present, and *-na* for the future. On the other hand, in internally headed relative clauses the relativizers refer to both the position relativized and the tense: subject in present contexts is relativized by *-j*, while non-subject

in past contexts is relativized by *-shka*. Unfortunately, Cole (1985) does not provide any explanations for the observed phenomenon.

The list of languages featuring participles with limited contextual orientation is given in Table 10. Figure 13 presents their geographical distribution.

Figure 13. Contextually oriented participles (limited orientation)
Orientation: ● non-subject ■ non-subject, non-P ▲ obliques only

Table 10. Languages with participles demonstrating limited contextual orientation

FAMILY	GENUS	LANGUAGE	ORIENTATION
NORTH AMERICA (4/13)			
Cochimi-Yuman	Yuman	Maricopa	Non-Subject
Seri	Seri	Seri	Obliques only
Uto-Aztecan	Numic	Tümpisa Shoshone	Non-Subject
	Tarahumaran	Warihio	Non-Subject
SOUTH AMERICA (5/16)			
Arawakan	Inland Northern Arawakan	Tariana	Non-Subject
Jivaroan	Jivaroan	Aguaruna	Non-Subject
Pano-Tacanan	Panoan	Matsés	Non-Subject
Quechuan	Quechuan	Tarma Quechua	Non-Subject
Tupian	Tupí-Guaraní	Kamaiurá	Non-Subject, Non-P

AFRICA (1/12)			
Mande	Eastern Mande	Wan	Non-Subject
EURASIA (6/47)			
Sino-Tibetan	Mahakiranti	Dolakha Newar	Non-Subject
	rGyalrongic	Japhug rGyalrong	Non-Subject
Uralic	Mari	Meadow Mari	Non-Subject
	Permic	Beserman Udmurt	Non-Subject
	Samoyedic	Tundra Nenets	Non-Subject, Non-P
Yukaghir	Yukaghir	Kolyma Yukaghir	Non-Subj

3.6. Orientation extension

3.6.1. Extension by means of specialized affixes

In many languages, participial forms inherently oriented towards some of the core participants can have regular ways of extending their orientation towards particular peripheral participants. It is important to bear in mind that in most of such cases the original participial form itself does not change its orientation, because the extension is a result of certain morphological or syntactic changes in the construction. Therefore, this topic is only indirectly related to the concept of orientation as an inherent property of participial forms. However, since possibilities for extension are attested all over the world, I will briefly consider them here. The present section provides an overview of the cases where such extension involves the use of a specialized marker in the participial form.

An Austronesian language Muna, for example, employs a suffix to transform a passive participle into a participle oriented towards certain peripheral participants. The form marked by *ni-* is normally oriented towards the direct object, cf. (95a). However, in combination with the marker *-ghoo*, the *ni-* participle becomes oriented towards a peripheral participant, in case of (95b) – instrumental. When attached to independent predicates, the marker *-ghoo* allows them to take peripheral participants, such as instruments, cf. (95c), recipients, cf.(95d), or reason, cf. (95e). Unfortunately, the available description of Muna does not provide any examples of the relativization of peripheral participants other than instruments, but we could expect that the speakers would employ the suffix *-ghoo* in these contexts as well.

(95) Muna (Austronesian > Celebic; Indonesia; van den Berg 2013: 234, 176, 152)

a. *sau* [*ni-bhogha-mu*] *no-wolo-mo*
wood PTCP.PASS-chop-your 3SG.REAL-finish-PFV
'The wood that you have chopped has been used up.'

b. *aitu-ha-e-mo* *polulu* [*ne-bhogha-ghoo-no* *sau*]
that-HA-it-PFV axe PTCP.PASS-chop-IO-his wood
'That is the axe with which he has chopped the wood.'

c. *ae-ghome-ghoo* *sabo*
1SG.REAL-wash-IO soap
'I wash with soap.'
d. *ne-owa-ghoo* *ama-ku* *kenta*
3SG.REAL-bring-IO father-my fish
'She brought my father some fish.'
e. *inodi ini* *a-rugi-ghoo-mo* *ka-pudhi-no* *dahu*
I this 1SG.REAL-lose-IO-PFV NMZ-praise-POSS.LK dog
'I suffered a loss because of the dog's praises.'

A similar strategy employing the causative affix *-bta-* is attested in Tundra Nenets, cf. Nikolaeva (2014: 321). Another option this language has for extending the participial orientation is using a periphrastic construction. Normally, imperfective, perfective, future and negative participles in Tundra Nenets are used to relativize only subjects and direct objects, cf. (96a) and (96b) respectively[20]. However, in order to relativize lower positions of the Accessibility Hierarchy, speakers regularly use the perphrastic construction where the lexical verb appears in the form of a modal converb (optionally bearing an essive case marker) accompanied by an auxiliary verb *me-* 'use' in the appropriate participial form. This strategy allows the relativization of peripheral participants, such as instrumentals, cf. (96c), and locatives, cf. (96d):

(96) Tundra Nenets (Uralic > Samoyedic; Russia; Nikolaeva 2014: 318–321)
a. [*Moskva-xəna yil'e-n'a*] *nəni-m* *xamc°ə-d°m*
Moscow-LOC live-IPFV.PTCP guy-ACC love-1SG
'I am in love with a guy who lives in Moscow.'
b. [(*mən'°*) *ŋəw°la-w°dawey°*] *wen'ako-m'i*
I feed-NEG.PTCP dog-1SG
'the dog which I didn't feed' (319)
c. [*ŋəmca-m* *məda-ba-°* *meq-mer°*] *xərə-r°*
meat-ACC cut-DUR-MOD use-PFV.PTCP.2SG knife-2SG
'the knife with which you had cut the meat'
d. [*yil'e-s°-(ŋe°)* *meq-m°nta(-m'i)*] *m'aq-m'i*
live-CVB.MOD-ESS use-FUT.PTCP-1SG tent-1SG
'the tent in which I will live'

As I mentioned earlier (see Section 3.3.2), in West Greenlandic bare participial markers can only be used to relativize intransitive subjects (*-soq*) and direct objects (*-saq*). A detransitivising suffix, however, allows the *-soq* participle to relativize original transitive subjects as well, cf. (58b), while the marker of the passive participle *-saq* can attach to the verbs containing derivational markers, such as *-ffigi-* 'have as place of' or *-ssut-* 'means/cause/reason for' in order to enable the relativization of other participants, cf. (97):

[20] Even though some speakers of Western dialects occasionally use these forms to relativize locative participants as well (Nikolaeva 2014: 320).

(97) West Greenlandic (Eskimo-Aleut > Eskimo, Greenland; Fortescue 1984: 53–54)
a. *angut* [*iser-ſigi-sa-ra*]
man go.in-have.as.place.of-PTCP.PASS-POSS.1SG.ABS
'the man to whom I went in'
b. *savik* [*toqut-si-ssuti-gi-sa-a*]
knife kill-HTR-means.for-have.as-PTCP.PASS-POSS.3SG.ABS
'the knife with which he killed'

In Kayardild, consequential nominalizations are inherently oriented towards syntactic subjects only, cf. (98a). However, if an original direct object or a locative is promoted to the subject position by adding a middle suffix, the relativization of peripheral participants becomes possible as well, cf. (98b) and (98c) respectively:

(98) Kayardild (Tangkic; Australia; Evans 1995: 481–483)
a. [***wungi-n-ngarrba***] *dangka-a bala-a-j*
steal-NMZ-CONS man-NOM shoot-MID-ACTUAL
'The man who had stolen (the cattle) was shot.'
b. *nyingka kamburi-jadathin-a dangka-a* [*yarbu-nyarrba balangkali-ngarrba*
2SG.NOM speak-IMP that-NOM man-NOM snake-CONS brown.snake-CONS
ba-yii-n-ngarrb]!
bite-MID-NMZ-CONS
'You speak to that man who was bitten by a brown snake.'
c. *ngada mungurru dathin-ki dulk-i* [***ngijin-marra-a-n-ngarrba-y***]
1SG.NOM know.NOM that-MLOC place-MLOC 1SG.POSS-go-MID-NMZ-CONS-MLOC
'I know that familiar place.' (Lit. 'that place gone to by me.)'

Despite being attested in typologically very diverse languages, the instances of extension of the type outlined above (i.e. involving additional morphology on the verb form), are fairly uncommon. In the next section, I will discuss a more common way of extending participial orientation.

3.6.2. Extension by means of resumptive elements

The second type of orientation extension does not involve any additional morphology in the participial form, but the extension is rather signaled by obligatory resumptive pronouns in the relative clause. The orientation in this case can be extended to almost any non-core participant of the clause. In Modern Standard Arabic, for example, there are two inherently oriented participles, one of which has active orientation, and the other one has passive orientation. However, these participles can also be used to relativize other participants. In this case, the choice between the active and the passive participial form is primarily based on pragmatic reasons, and the relativized participant is obligatorily

represented in the relative clause by a resumptive element. For instance, in example (99a) the active participle is used to relativize a direct object, in example (99b) (mentioned earlier in (61) but repeated here for convenience) the passive participle relativizes an object of the postposition, and example (99c) provides an illustration of possessor relativization by means of an active participle:

(99) Modern Standard Arabic (Afro-Asiatic > Semitic; multiple countries; Doron & Reintges 2004)

a. *ʔas-sayārat-u* [*s-sāriq-u-**hā*** *ʔaḥmad-u*]
the-car(F).SG-NOM the-steal.PTCP.ACT.M.SG-NOM-**ACC.3.F.SG** Ahmad-NOM
'the car that Ahmad stole'

b. *ʔal-jihat-u* [*l-manūṭ-u* *bi-**hā***
the-agency.F.SG-NOM the-trust.PTCP.PASS.M.SG-NOM in-**F.SG**
xtiyār-u *l-musāfir-īna*]
CONSTR.choice(M).SG-NOM the-traveller-M.PL.GEN
'the agency with which the choice of travellers has been entrusted'

c. *waṣal-at* *il-marʔat-u* [*l-jālis-u-una*
arrive.PRF-3.F.SG the-woman(F).SG-NOM the-sit.PTCP.ACT.M.PL-NOM
*ʔawlād-u=**hā***]
children.M.PL-NOM=**POSS.3.F.SG**
'The woman whose children are sitting arrived.'

The same type of extension is also attested in Krongo (Kadugli-Krongo > Kadugli; Sudan; Reh 1985), where by means of resumptive pronouns the active participle can relativize various participants at least down to obliques, and in Middle Egyptian (Afro-Asiatic > Egyptian-Coptic; extinct; Kramer 2003), where the passive participle extends its relativization capacity at least to indirect objects and certain locatives.

The extension of orientation by means of resumptive pronouns is also very common for contextually oriented participles that cannot relativize possessors without any additional markers, cf. example (100) for possessor relativization in Sakha, where the possessive marker *-e* is an obligatory part of the relative construction:

(100) Sakha (Turkic; Russia; Pakendorf, p.c.)
Min [*kergen-**e*** *kïrb-ï:r*] *jaχtar-i̲* *kör-büt-üm.*
1SG spouse-**POSS.3SG** beat-PTCP.PRS woman-ACC see-PTCP.PST-POSS.1SG
'I saw the woman whose husband beats her.'

In some languages, the use of resumptive pronouns with contextually oriented participles can allow these forms to relativize not only possessors, but also other participants, in case they are encoded by a similar construction, e.g. when postpositions behave syntactically as possessa. This type of situation was illustrated in examples (51b) and (51c) from Kalmyk, repeated here for convenience:

(101) Kalmyk (Mongolic; Russia; Krapivina 2009: 503, personal field notes)

a. [***dotrə-n***^{j} *määčə* *kevt-sən*] *avdər* *orə-n* *dor* *bää-nä*
inside-POSS.3 ball lie-PTCP.PST chest bed-EXT under be-PRS
'The chest in which there is a ball is under the bed.'

b. [*gerə-n*^{j} *šat-ǯə* *od-sən*] *övgə-n* *Elstə*
house-POSS.3 burn-CVB.IPFV leave-PTCP.PST old.man-ext Elista
bää-xär *jov-la*
be-CVB.PURP go-REM
'The old man whose house had burned down moved to Elista.'

3.6.3. Pragmatic extension

In the final type of orientation extension, no additional material whatsoever is required. This is a case of extension to possessor relativization, attested, for instance, in Muna, where the forms commonly used for subject relativization, cf. (102a), can also relativize possessors, cf. (102b):

(102) Muna (Austronesian > Celebic, Indonesia; van den Berg 2013: 232, 234)

a. *ae-faraluu* *dahu* [*so* ***me-dhaga-ni-no*** *lambu*]
1SG.REAL-need dog FUT **PTCP.ACT-guard-TR-PTCP.ACT** house
'I need a dog that will guard the house.'

b. *ampa-mo* *kaawu* *kampuſu-ndo* [***mo-de-dea-no*** *wangka*(-*no*)]
merely-PFV only youngest-their **PTCP.ACT-INT~red-PTCP.ACT** tooth(-his)
'It was only their youngest child whose teeth were red.'

As it is clear from the example above, the relativization strategy in both cases is exactly the same. The only difference is that the sentence illustrating possessor relativization can contain a possessive affix *-no* on the possessed, which could be regarded as a resumptive element indicating the relativized position. This possessive marker, however, is optional in this case, and the sentence without it would also be fully grammatical, which distinguishes this example from those considered in the previous section.

The only important restriction in Muna is that active participles can only relativize a possessor of the participant which is itself a subject within the relative clause, e.g. *wangka* 'teeth' in the example (102b). It would be impossible, on the other hand, to produce a sentence like 'It was only their youngest child whose teeth the dentist removed', where the word meaning 'teeth' would be a direct object. This restriction is also present in Maricopa, which also allows the extended use of active participles. Furthermore, in Maricopa, the use of this relativization strategy is limited to relative clause predicates denoting properties, such as, for instance, colours. Examples below show how one and the same relative clause can be used to relativize different participants, (103a) being an instance of subject relativization, and (103b) illustrating possessor relativization:

(103) Maricopa (Cochimi-Yuman > Yuman; United States; Gordon 1986: 259)

a. [*sny'ak* ***e'e*** *ku-hmaaly-sh*] *sily-k*
woman **hair** REL-white-SUBJ fall-REAL
'The woman's white hair is falling out.'

b. [***sny'ak*** *e'e* *ku-hmaaly-sh*] *ny-wik-k*
woman hair REL-white-SUBJ 3/1-help-REAL
'The woman with the white hair helped me.'

In West Greenlandic, active participles are also used for relativizing possessor of the subject, while passive participles are used to relativize possessor of the object, see Fortescue (1984: 53−54). The same situation is observed in Azeri (Turkic, Azerbaijan; Authier 2012: 229), and in Kamaiurá (Tupian > Tupí-Guaraní; Brazil; Seki 2000), where the choice of participle for possessor relativization depends on the role of the possessee in the relative clause.

This rule does not only concern core participants. In Ma'di, the *-dʒɔ́* form is chiefly employed for relativization of instruments and reasons, cf. (104a). However, this same form can also be used to relativize a possessor of an instrument or a possessor of something perceived as a reason, cf. (104b):

(104) Ma'di (Central Sudanic > Moru-Ma'di, Sudan, Uganda; Blackings & Fabb 2003: 205–206)

a. *àdʒú* [*má-à* ***dɪ̀̃-dʒɔ́***] *rɨ̀* *ʔɪ̄* *ēgwè* *dì*
spear 1SG-POSS NPST-kill-SR DEF FOC lose COMPL
'The spear with which I killed it is lost./The spear for which I killed it is lost.'

b. *ágɔ́* [*má-à* *àdʒú* *àní* *drí*(*sì*) *òdrú* ***dɪ̀̃-dʒɔ́***] *rɨ̀* *ʔɪ̄*
man 1SG-POSS spear 3SG POSS SRC buffalo NPST-kill-SR DEF FOC
'The man with whose spear I killed a buffalo./The man for whose spear I killed a buffalo.'

It is, therefore, a fairly general cross-linguistic tendency that if participles in a language have certain distribution regarding the types of possessors they can relativize, then it is the syntactic function of the possessum that determines the choice of the participle for possessor relativization. The only language in my sample that deviates from this tendency to a certain extent is Tundra Nenets (although it uses resumptive pronouns for possessor relativization, I will still consider it here as belonging to the current discussion). The language has two sets of forms used for relativization. The forms belonging to the first set (referred to as *participles* by Nikolaeva 2014) can relativize subjects and direct objects, while the others (*action nominals* and *modal converb*) can relativize a wide range of peripheral participants, i.e. the positions of the Accessibility Hierarchy to the right of the indirect object inclusively. In both cases, the strategy emloyed is gapping, i.e. there are no elements in the relative clause referring to the modified noun. Both sets of forms, however, can also be used for possessor relativization employing the resumptive strategy, when the modified noun is represented in the relative clause by a possessive suffix. The choice of the adnominal verb form is in this case determined by the syntactic function of the possessum in the relative clause. If the possessum occupies the subject position, the

speakers use the first set of forms (the participles), cf. (105a), while in all other cases they employ the second set (the action nominals or the modal converb), cf. (105b)–(105d):

(105) Tundra Nenets (Uralic > Samoyedic; Russia; Nikolaeva 2014: 328–329)

a. [*xər°-da / xər°-nta* *məl'°-wi°*] *xasawa*
knife-3SG / knife-GEN.3SG break-PFV.PTCP man
'the man whose knife broke'

b. [*yəxa-m-da* *mənes-oqma-m'i*] *n'enec'ə-m'i*
river-ACC-3SG see-PFV.ANOM-1SG person-1SG
'the man whose river I saw'

c. [*n'e* *n'a-x°nta* *kniga-m* *m'is-oqma*(*-m'i*)] *n'enec'ə-m'i*
woman companion-DAT.3SG book-ACC give-PFV.ANOM-1SG person-1SG
'the man to whose younger sister I gave book'

d. [*xər-x°nanta* *ŋuda-m'i* *məda-qma*(*-m'i*)] *n'enec'ə-m'i*
knife-LOC.3SG hand-ACC.1SG cut-PFV.ANOM-1SG person-1SG
'the man with whose knife I cut my hand'

Although in general Tundra Nenets follows the tendency outlined above, the language is unique in that the sets of relativized positions do not match completely. In the relativization of clausal participants, the border between the strategies on the Accessibility Hierarchy is between the direct object and the indirect object. On the other hand, when it comes to possessor relativization, the border is between the subject and the direct object. The mismatch is illustrated in (106) below.

(106) Clausal participant relativization:
(SU > DO) > (IO > OBL) > POSS

Sub-clausal participant relativization:
(SU) > (DO > IO > OBL) > POSS

This matter, however, is obviously very complex and definitely requires further language-internal investigation.

3.7. Resumptive pronouns in participial relative clauses

It is commonly assumed that in participial relative clauses the modified noun is usually not represented in any way, and therefore, they are all instances of gap relativization strategy, see, for instance, Lehmann (1984). However, as it has already become clear in earlier sections, the modified noun is in many cases represented in the relative clause by various resumptive pronominal elements. In this section, I will provide a brief overview of the use of these elements in participial relative clauses.

First of all, resumptive elements vary considerably in their form. For example, they can be third-person pronouns, cf. (107), reflexive pronouns, cf. (108), indefinite pronouns, cf. (109), or pronominal possessive affixes, cf. (110):

(107) Tümpisa Shoshone (Uto-Aztecan > Numic; United States; Dayley 1989: 369)
[***U*** ***tukkwa*** *nümmin nuunaahappüha*] *ukkwa* *samapitta* *u* *punikka* *nüü*
it **under** our.EX sit.PL.SUB.O that.O cedar.O it see I
'I see the cedar under which we were sitting.'

(108) Tanti Dargwa (Nakh-Daghestanian > Dargwa, Russia; Sumbatova & Lander 2014: 191)
[*dali* ***(sun-ni-ž)*** *čut:u* *b=ič:-ib*] *durħa*^{ʕ}
I.ERG **REFL-OBL-DAT** chudu N=give.PFV-PRET boy
'the boy whom I gave chudu' (193)

(109) Coahuilteco (Coahuiltecan; United States; Troike 2010: 4)
pi·nwakta· [*Dios* ***pil'ta*** *a-pa-ta·nko*] *tuče·-m*
things God **something** 3-SUB-command DEM-CONC.2
'the things which God commands'

(110) Meadow Mari (Uralic > Mari; Russia; Brykina & Aralova 2012: 483)
[*Oza-ž-əm* *saj-ən* *pal-əme*] *pört* *vokte-č'*
owner-**POSS.3SG**-ACC good-ADV know-NMZ house near-ELA
tudo *č'üč'kədən* *ert-a.*
he often go.by-PRS.3SG
'He often walks by the house whose owner he knows well.'

Secondly and more importantly, resumptive pronouns and other resumptive elements differ in their obligatoriness in participial relative clauses. As I have shown in Section 3.6.2, for some languages they serve as regular means of allowing both inherently and contextually oriented participles to relativize certain lower positions of the Accessibility Hierarchy (predominantly obliques for inherently oriented forms, and possessors for contextually oriented forms). Since this topic has already been discussed earlier, in this section I will chiefly focus on the resumptive pronouns that are not obligatory, but can optionally occur in specific contexts.

In Savosavo, the obligatoriness of overt reference to the modified noun within the relative clause increases down the Accessibility Hierarchy. When the subject is relativized, no overt cross-referencing material is present in the relative clause, cf. (111a). When the direct object is relativized, no overt object noun phrase can be used in the relative clause, although the object agreement on the transitive verb remains, cf. (111b). For locative-marked adjuncts, a co-referential locative-marked pronoun often occurs in the corresponding place in the relative clause, but its use is optional, compare (111c) and (111d). Finally, when a possessor is relativized, the genitive-marked pronoun denoting the possessor is obligatorily present in the relative clause, cf. (111e).

(111) Savosavo (Savosavo; Solomon Islands; Wegener 2012: 253–257)

a. [*lo* ***Ø*** *kabu* *ba-tu*] *lo* *mapa=gha*
DET.PL move.away come-REL det.PL person=PL
'the people who came running away'

b. [*Ze-va* ***Ø*** *bo* *k-au-tu*] *ko* *adaki=e*
3PL-GEN.M go 3SG.F.O-take-REL DET.SG.F woman=EMP
ko=na
3SG.F=NOM
'She (was) the woman whom they had gone (to and) taken.'

c. [*lo* *no* *tone* *lo* ***lo*****=***la* *vasikaka-tu*]
DET.SG.M 2PL.GEN brother 3SG.M.GEN **3.SG.M**=LOC.M be.ungenerous-REL
lo *ghau*
DET.SG.M fishing.bamboo
'that fishing bamboo your brother is so ungenerous about'

d. [*lo* *ko-va* ***Ø*** *bo* *tei-tu*] *lo* *peleni*
DET.SG.M 3SG.F-GEN.M go want.to.do-REL DET.SG.M plane
'the plane she will go with'

e. [*to* *no-va* ***to-****ma* *mama* *k-aka* *savu-li-tu*]
DET.DU 2SG-GEN.M **3DU**-GEN.SG.F mother 3SG.F-to tell-3SG.M.O-REL
to *gnuba=lo*
DET.DU child=DU
'those (two) boys whose mother you told it to'

A very similar situation is observed in Kambaata (Afro-Asiatic > Highland East Cushitic; Ethiopia; Treis 2008) and Sheko (North Omotic, Ethiopia; Hellenthal 2010), although in these two languages the use of resumptive elements is already possible for the position of the direct object, as well as for other positions down the Accessibility Hierarchy. In Tümpisa Shoshone (Uto-Aztecan > Numic; Unites States; Dayley 1989), where both the past participle in *-ppüh* and the infinitive in *-nna* allow the relativization of direct objects, indirect objects, and objects of postpositions, the use of resumptive pronouns is possible in all the contexts, but obligatory only in the last case. Judging by the data provided in Jeanne (1978), in Hopi the use of a resumptive pronoun is possible already in the context of subject relativization, cf. (112a). It is also optional when a direct object is relativized, cf. (112b), but obligatory for the relativization of objects of postposition, cf. (112c):

(112) Hopi (Uto-Aztecan > Hopi; United States; Jeanne 1978: 193, 196)

a. *niʾ* *tiyoʾya-t* **[*(pam)*** *pakmiɨy-qa-t*] *hoona*
I boy-OBL **he** cry-REL-OBL sent:home
'I sent home the boy that is crying.'

b. *niʾ* *tiyoʾya-t* [*ʾita-ŋɨ* ***(pi-t)*** *naawakna-qa-t*] *tɨwiʾyta*
I boy-OBL our-mother **him-OBL** like-REL-OBL know
'I know the boy that my mother likes.'

c. *niˀ* *tiyoˀya-t* [*ˀita-na* *(pi-t)* ***ˀa-mim*** *timalaˀyta-qa-t*] *tiwiˀyta*
I boy-OBL our-father him-OBL **him-with** work-REL-OBL know
'I know the boy who my father works with.'

Finally, another type of resumptive pronoun use is reported for three Nakh-Daghestanian languages, Lezgian, Hinuq and Tanti Dargwa. In these languages, resumptive pronominal elements are available irrespective of the syntactic role being relativized. Their actual use is regulated by pragmatics: a speaker is more likely to use a resumptive pronoun if the relativized participant is not easily recoverable from the context. The following examples illustrate the structural possibility of resumptive pronoun use in Tanti Dargwa when the roles relativized are intransitive subject, cf. (113a), transitive subject, cf. (113b), direct object, cf. (113c), indirect object, cf. (113d), instrument, cf. (113e), and location, cf. (113f):

(113) Tanti Dargwa (Nakh-Daghestanian > Dargwa; Russia; Sumbatova & Lander 2014: 192–194)

a. [***(sa<r>i)*** *dam-š:u* *r=ač'-ib*] *rurs:i*
REFL<F> I.OBL-AD(LAT) F=come.PFV-PRET girl
'the girl who came to me'

b. [***(sun-ni)*** *čut:u* *b=erk:-un*] *umra*
REFL-ERG chudu N=eat.PFV-PRET neighbour
'the neighbor who ate chudu'

c. [***(sa<b>i)*** *umra-li* *b=erk:-un*] *čut:u*
REFL<N> neighbour-ERG N=eat.PFV-PRET chudu
'the chudu that the neighbour ate'

d. [*dali* ***ču-ž*** *žuž* *b=ič:-ib-se*]
I.ERG REFL.OBL.PL-DAT book N=give.PFV-PRET-ATTR
durħ-n-a-li *sa<b>i* *b=it-aq-aq-ib*
boy-PL-OBL.PL-ERG REFL<N> N=thither-get.lost.PFV-CAUS-PRET
'The boys whom I had given the book lost it.'

e. [*dali* ***(sun-ni-c:ele)*** *ʔaʿml-e* *kaʿ-d=aʿq-ib-se*] *q'iq'*
I.ERG REFL-OBL-COM nail-PL down-NPL=hit.PFV-PRET-ATTR hammer
'the hammer with which I hammered the nails'

f. [*du* ***(sun-ni-š:u)*** *q'˳-aʿn-se*] *qali*
I REFL-OBL-AD(LAT) go.IPFV-PRS-ATTR house
'the house that I am walking to'

Naturally, the probability of occurrence of resumptive pronouns in these languages is higher when a participant from the lower part of the Accessibility Hierarchy is relativized, since it is exactly in these contexts that the recoverability might be hindered, see Sumbatova & Lander (2014: 195). However, these cases are still typologically remarkable since they contradict both aforementioned typological generalizations concerning resumptive pronouns. First, they are instances of resumptive pronoun use in prenominal relative clauses, compare the expectations in Keenan (1985: 148) or Givón (1990: 656). Second, at least in some cases they do allow the use of resumptive elements even when the

highest positions of the Accessibility Hierarchy are relativized, such as subjects and direct objects, compare Keenan & Comrie (1977: 92).

Optional resumptive pronouns can combine with inherently oriented participles as well. For instance, in Ma'di, participial relative clauses introduced by the instrumental participle in *-dʒɔ́* can optionally contain the word *drō* 'with it' referring to the relativized participant, cf. (114):

(114) Ma'di (Central Sudanic > Moru-Ma'di; Sudan, Uganda; Blackings & Fabb 2003: 206)

àdʒú	[*má-à*	*dɪ̄̀-dʒɔ́*	**(*drō*)**]	*rɨ́*	*ʔɪ̄*	*ēgwè*	*dì*
spear	1SG-POSS	NPST-kill-SR	with.it	DEF	FOC	lose	COMPL

'The spear with which I killed it is lost.'

This situation, however, is extremely rare due to a combination of reasons. First, as I have shown above, resumptive pronouns are not very common in participial relative clauses in general. Second, even if they do occur, they tend to be used only when some lower positions of the Accessibility Hierarchy are relativized, and participles inherently oriented towards a peripheral participant are only attested in a handful of languages in my sample (see Section 3.4). In addition, the main function of resumptive pronouns is to point at the relativized participant in the cases where it is not totally clear which participant is relativized, while for the participles inherently oriented towards one particular participant this problem does not appear to be relevant. Therefore, the combination of an instrumental participle with a resumptive pronoun attested in Ma'di should rather be considered an exception.

Mẽbengokre provides an illustration of another cross-linguistically unusual phenomenon, namely it features what can be classified as resumptive pronouns in internally headed relative clauses. In regular relative clauses in Mẽbengokre, the modified noun occupies the place that it is supposed to occupy due to its role in the relative clause, cf. (115a), where the relativized recipient 'the relative of mine' occurs after the ergative subject. However, according to Salanova (2011), the relativized participant can sometimes be left-dislocated within the relative clause (possible reasons for left-dislocation in relative clauses are unclear from the available description). Consequently, there appears a resumptive third-person pronoun in place of the dislocated constituent, cf. (115b), where the pronoun *kum* refers to the white man:

(115) Mẽbengokre (Nuclear-Macro-Ge > Ge-Kaingang, Brazil; Salanova 2011: 58, 66)

a. [*i-je* ***i-nhõ*** ***bikwa*** ***mã*** *idji* *jarẽnh*] *nẽ* *bôx* *mã*
1-ERG **1-POSS** **relative to** 3.name say.NMZ NFUT arrive about.to
'The relative of mine to whom I gave a name is about to arrive.'

b. [***kubẽ*** *i-je* ***ku-m*** *katõk* *nhãr*] *nẽ* *jã*
barbarian 1-ERG **3-DAT** gun give.NMZ NFUT this
'This is the white man to whome I gave the gun.'

The overall use of resumptive pronouns in the languages of the sample is summarized in Table 11 and Figure 14:

Table 11. Resumptive pronouns in participial relative clauses

Language	Form(s)	SU	DO	IO	OBL	POSS
Contextually oriented participles						
Korean	All Participles	no	no	no	no	poss
Even	All Participles	no	no	no	no	obl
Nanai	All Participles	no	no	no	no	obl
Sakha	All Participles	no	no	no	no	obl
Apsheron Tat	Participle	no	no	no	no	obl
Motuna	Participle	no	no	no	no	obl
Meadow Mari	Future Participle, Negative Participle	no	no	no	no	obl
Meadow Mari	Passive Participle	–	no	no	no	obl
Northern Khanty	Non-Past Participle, Past Participle	no	no	no	no	obl
Kolyma Yukaghir	Active Attributive Form, Action Nominal	no	no	no	no	obl
Kalmyk	Habitual, Perfective, and Future Participles	no	no	no	poss/obl	obl
Coahuilteco	Subordinated Form	no	no	poss	poss	–
Savosavo	Relative Form	no	no	poss/obl	poss/obl	obl
Kambaata	Affirmative and Negative Relative Forms	no	poss	poss	poss	obl
Sheko	Relative Verb Form	no	poss	poss/obl	obl/poss	obl
Hopi	Nominalization	poss	poss	poss	poss/obl	?
Tümpisa Shoshone	Infinitive, Past Participle	–	poss	poss	obl	–
Hinuq	General, Past, Habitual, and Resultative Participles	poss	poss	poss	poss	poss
Tanti Dargwa	All Participles	poss	poss	poss	poss	poss
Lezgian	Participle	poss	poss	poss	poss	poss
Mẽbengokre	Nominalization	?	poss	poss	poss	poss
Ronghong Qiang	Agent Nominalization	?	?	poss	?	?
Inherently oriented participles						
Japhug rGyalrong	S/A Participle	no	–	–	–	obl
Japhug rGyalrong	P Participle	–	no	–	–	obl
Kamaiurá	All Participles	(no)	(no)	(no)	(no)	obl
Krongo	Participle	no	obl	obl	obl	?
Middle Egyptian	Passive Participle	–	no	obl	obl	?
Ma'di	All Participles	no	no	no	(poss)	obl
Hinuq	Locative Participle	–	–	–	poss	–

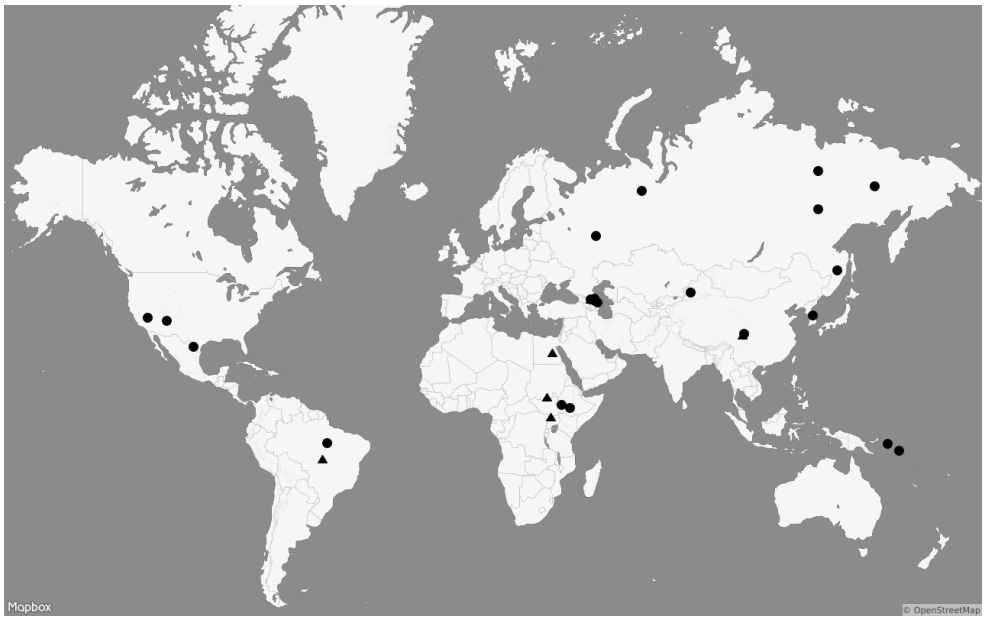


Figure 14. Resumptive elements in participial relative clauses
Resumptive elements with ● contextually oriented participles ▲ inherently oriented participles

3.8. Discussion

In the preceding sections, I have outlined the types of participial orientation attested in the languages of the sample. The important question now is: how can we explain these types, or, in other words, what are the motivations for their formation? I will address this topic in the present section.

The first feasible type of motivation is *structural*. It concerns the connection between the alignment that a given language demonstrates in other domains (e.g. syntactic alignment, morphological alignment), and the inherent orientation of participles in this language. The hypothesis is, thus, the following: if a language has nominative–accusative alignment, it should have active and passive participles, while a language with absolutive–ergative alignment is expected to have absolutive and agentive participles. This hypothesis, however, does not work as a valid generalization if applied to the data presented in this study. As shown in Section 3.3.5, many languages clearly belonging to the accusative type possess resultative participles that are able to relativize P and (mostly inactive) S participants. Some of them, such as Kokama-Kokamilla (Tupian > Tupí-Guaraní, Peru; Vallejos Yopán 2010) and Urarina (Urarina; Peru; Olawsky 2006) even do not show any restrictions on the relativizable P and S participants, and, therefore, feature pure absolutive and agentive participles. Even in languages with absolutive–ergative alignment, the use of absolutive participles can be limited to resultative or perfective contexts, which is not parallel to the alignment observed in independent sentences, see the

case of Basque (Basque; Spain; Hualde & Ortiz de Urbina 2003). The only absolutive–ergative language for which the orientation of absolutive participles can be regarded as structural is Koryak, which employs future nominalization *-jo-lqəl* and non-future nominalization *-lq-* for relative clause formation. On the other hand, taking into account the fact that this is the only absolutive–ergative language for which this explanation works, it does not appear very convincing.

If we take a look at nominative–accusative languages of the sample, many of them, indeed, do have active and/or passive participles, e.g. Finnish, Russian, or Modern Standard Arabic. At the same time, however, the patterning of S and A participants in participial orientation is not only characteristic of nominative–accusative languages, but absolutive–ergative language (generally less cross-linguistically common) exhibit it as well. For instance, it is attested in all the Australian languages that have inherently oriented participles, e.g. Garrwa (Garrwan, Australia; Mushin 2012), Martuthunira (Pama-Nyungan > Western Pama-Nyungan, Australia; Dench 1995), or Wambaya (Mirndi > Wambayan, Australia; Nordlinger 1993). We can conclude, therefore, that the presence of active and/or passive participles in a given language does not imply nominative–accusative orientation, which, consequently, should not be regarded as a structural phenomenon.

The only two cases where certain structural factors clearly play a crucial role are participles with limited contextual orientation, and passive participles. As I have shown in Section 3.5.2, in all the languages that feature such forms, they do not occur on their own but rather belong to a paradigm of non-finite forms used to relativize different participants. It is, therefore, evident that the primary reason why these forms are oriented in this particular way is that they need to "take over" the positions of the Accessibility Hierarchy that are unavailable for the other participial forms existing in the language. Passive participles, which are oriented towards direct objects (and not patients or themes), also clearly exhibit orientation of the structural type. Interestingly, as shown by Haspelmath (1994), this is a recent development for many languages. However, it should be noted that passive orientation can in some cases be simply of a residual type, since P is the only core participant left when S and A are already "reserved" by active participles.

Following the argumentation by Aikhenvald & Dixon (2011), I suggest that inherent orientation of participles is best explained by the *semantics* and *pragmatics* of the constructions they appear in. Semantically, it is easiest to account for the participles that are oriented towards peripheral participants, such as locatives or instrumentals. In fact, in many cases it is only possible to formulate their relativizing capacity in purely semantic terms. For instance, the locative nominalization in *ka-V-ha* in Muna (Austronesian > Celebic; Indonesia; van den Berg 2013) is not oriented towards a participant encoded in any particular way, but rather to any participant denoting a location. In a similar fashion, the instrumental nominalization in *-nanɨ* in Apatani (Sino-Tibetan > Tani; India; Abraham 1985) can be oriented towards any participant acting as an instrument, no matter what formal encoding it would receive in an independent clause[21]. The relevance of semantics

[21] This tendency is also relevant for restrictions imposed on contextually oriented participles. For instance, Nefedov (2012: 215) reports for Ket (Yeniseian; Russia) that the action nominal used for non-finite relativization is capable of relativizing an instrument, but other participants encoded in exactly the same way

in this case is partly reflected in the fact that forms classified here as participles oriented towards peripheral participants, are commonly described as participant nominalizations in individual languages, see Section 3.4. It should be noted though, that some participles used for relativizing peripheral participants do rely on formal properties when determining their orientation. In this case, they are oriented towards a participant that would have a particular type of encoding if expressed overtly, see discussion of the form in *-dʒɔ́* in Ma'di (Central Sudanic > Moru-Ma'di; Sudan, Uganda; Blackings & Fabb 2003) in Section 3.4, and relevant examples in (83). This, however, is extremely rare in my sample.

Semantics also appears very important for the orientation of participles relativizing core arguments of the clause, i.e. A, S and P participants. As I have shown in Section 3.3.1, both patterning types (S/A vs. P, and S/P vs. A) have certain semantic grounds. S and A participants pattern together because they are commonly human and controlling, whereas S and P participants are semantically more tightly bound to the verb. The languages, therefore, can differ in which of these two motivations they take into account when determining the orientation of their participles. In addition, the participant relativized by agentive participles is also defined in semantic terms, i.e. as a prototypically volitional and active initiator of the event.

Finally, pragmatics clearly plays an important role in motivating participial orientation. It is most evident in the case of contextually oriented participles, since in the constructions where they introduce relative clauses, the relativized participant is directly inferred from the context. Of course, in many cases, syntactic structure may provide a clue by excluding the participants that are overtly expressed in an externally headed relative clause, but pragmatics is still the most powerful instrument for the correct interpretation of such constructions. Apart from that, as I have shown in Sections 3.3.1 and 3.3.5, absolutive participial orientation is also best explained in pragmatic terms, especially in the case of non-resultative participles. As noted in Fox (1987) and further explained in Fox & Thompson (1990) and Schmidtke-Bode (2012), the main function of many instances of S and P relativization is to introduce a new entity into the discourse. I suggest that a language may naturally develop a specialized form for performing this function. This is apparently what is going on in Ket, where the action nominal can in principle relativize a fairly wide range of core and peripheral participants, but S and P relativization is strongly preferred.

To summarize, the orientation of participles can be determined by a number of factors, semantic, pragmatic and structural, but each group of factors can be more or less relevant for individual languages. In general, semantic factors are most important for the majority of participles oriented towards specific individual participants, that is, agents, instrumentals and locatives. Semantics can also affect the patterning of core participants, i.e. in motivating active or absolutive participles. In the active vs. absolutive opposition an important role belongs also to pragmatics, since, for instance, S and P relatives have a function of introducing new participants, while S and A relatives usually pertain to the topic of the discourse. Structural factors mostly play an accessory role in motivating different types of participial orientation.

(e.g. comitatives) cannot be relativized using the same strategy. It is, therefore, clear that it is the semantic role that is important, not the morphological marking.

3.9. Summary and conclusions

In this chapter, I have discussed the notion of participial orientation, examined participial orientation in the languages of the sample, and proposed possible motivations for the formation of attested orientation types. In general, participles in the world's languages can be either inherently oriented, or contextually oriented. Among inherently oriented participles, the most common types are active participles and absolutive participles, which imply two different types of patterning of core clause participants. Passive participles and agentive participles are oriented towards one particular core participant each. Apart from that, some languages also feature forms oriented towards a certain peripheral participant, such as instrumental or locative. The type of contextually oriented participles is not homogeneous either, including forms with full contextual orientation and limited contextual orientation. To widen the inherent relativizing capacity of participial forms, languages may employ different means, such as specialized suffixes and resumptive pronouns. The observed orientation types differ in the types of motivations that can best explain their formation. Inherently oriented participles are primarily grounded in semantics and pragmatics, while structural factors are only relevant for the development of residual types of orientation (passive and agentive participles). Contextually oriented participles are chiefly motivated by pragmatics, but the structure of the participial paradigm itself can trigger the development of forms with limited contextual orientation.

4. Desententialization and nominalization

4.1. Introduction

In Chapter 2, I introduced the definition according to which one of the crucial features of a participle is that it has to demonstrate a certain morphosyntactic deviation from the prototypical predicate of an independent sentence in a given language. This property of participial relative clauses is referred to as *deranking* as opposed to *balancing*. The next three chapters discuss the specific ways in which a participial clause and a participle itself can differ from an independent sentence and its prototypical predicate. The aim of the current chapter is to provide an overview of the possible deviations from the independent clause standard demonstrated by dependent clauses, and to select those of them which can be particularly relevant for the typology of participial relative clauses.

In the functional-typological literature, the discussion of structural, semantic and functional differences between main and dependent clauses has been particularly vigorous in connection with the notion of *finiteness*. The traditional approach to finiteness originates from the classic grammar, which made a binary distinction between the verbal forms specified for person and number (*verba finita*), and the verbal forms without any person-number marking (*verba infinita*), see, for instance, Koptjevskaja-Tamm (1999) or Nikolaeva (2007: 1) for an overview. However, as noted by Arkadiev (2014: 69), already the Neogrammarians were aware of the fact that the morphological dichotomy does not exactly align with syntactic positions in which morphologically finite and nonfinite verbal forms occur, cf. Brugmann (1892: 842). Apart from that, in some languages verb forms in general are not marked for most of the parameters normally relevant to verbs (tense, aspect, mood, person), and the notion of finiteness is, therefore, not applicable to them, cf. Cristofaro (2003: 53) for Gulf Arabic.

In the typological works of the last two decades, it has become a fairly mainstream view that finiteness should be regarded as a gradual and multifactorial rather than binary phenomenon (see, however, Bisang 2001, 2007). Nevertheless, the authors differ significantly in the (fragmentation of) exact criteria taken into account, in their (willingness to provide) functional explanations for the observed patterning of these criteria, and the consequences of their treatment of finiteness for typology. In the following sections, I will have a closer look at the scalar approaches to finiteness (4.2)[22], and based on that identify the parameters of variation that I will consider further in the study of participial relative clauses (4.3). Finally, section 4.4 is a brief summary of the chapter.

[22] It should be noted that in this chapter I will only discuss different approaches to finiteness to the extent that they are relevant to the point of the present study. For a comprehensive overview of the topic see, for instance, van Lier (2009: 81–98).

4.2. Scalar approaches to finiteness

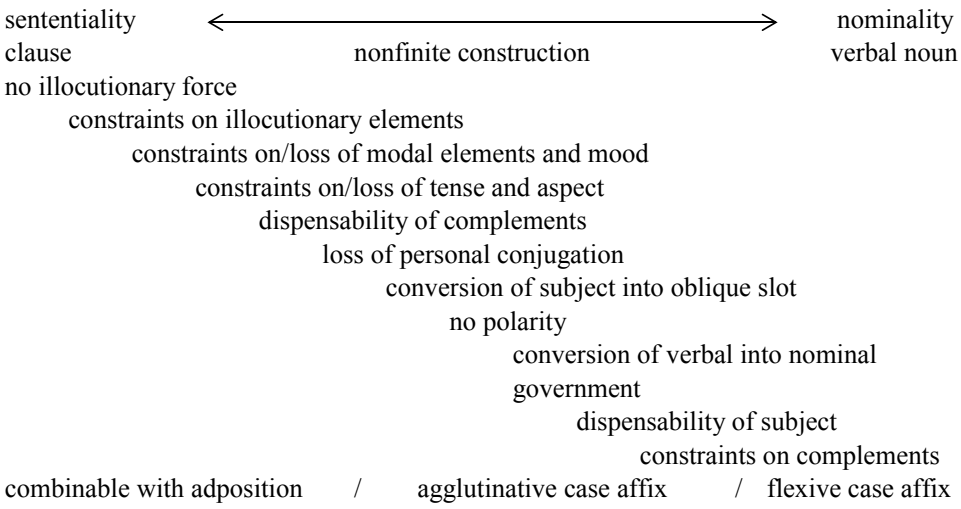
The goal of this section is to provide an overview of several distinct typological approaches that treat finiteness as a scalar phenomenon. I will start with Lehmann's (1988) scale of desententialization (4.2.1). After that, I will discuss Cristofaro's (2003) work on the typology of subordination (4.2.2). I will further proceed to Malchukov's (2004) book where he introduces the Generalized Scale Model (4.2.3). Finally, I will present the view proposed by Nikolaeva (2013) who applies the canonical approach to the notion of finiteness (4.2.4). Of course, this is by no means an exhaustive list of functionally oriented works concerned with the scalar nature of finiteness and related phenomena. I, however, consider these studies to be most representative of the diversity, because they incorporate a considerable number of earlier works, and differ significantly among themselves in proposed explanations and general typological understanding of finiteness. Some other approaches will be referred to in due course throughout the section. The section will round off with a brief summary of the approaches (4.2.5).

4.2.1. Lehmann's (1988) scale of desententialization

In the work on the typology of clause linkage, Lehmann (1988) suggests that a subordinate clause can be reduced to a varying degree, and he regards this reduction as a combination of two simultaneous processes. First, the clause loses its clausal properties, which means the components which allow reference to a specific state of affairs are dropped, and the state of affairs is commonly typified. This process can be referred to as *decategorization* of a dependent clause (Hopper & Thompson 1984, Malchukov 2004, van Lier 2009), because it involves the non-expression of behavioral potential associated with the primary — predicational — function of a clause, or *deverbalization* (Croft 1991: 79), because the properties lost, such as TAM distinctions or person-number marking, are primarily associated with the verb as the prototypical nucleus of a clause. Secondly, the clause increasingly acquires nominal properties, both internally and in its distribution, and, as a result, becomes a constituent of the matrix clause. This process is known as *recategorization* (Bhat 1994, Malchukov 2004, van Lier 2009), since it is reflected in the expression of behavioral potential associated with the secondary — referential or modifying — function of a dependent clause, or *nominalization* (Lehmann 1988; Malchukov 2004), since the most salient properties acquired as a result of the process (e.g. case or definiteness) pertain to nouns in the first place.

Lehmann refers to the bilateral process in its entirety as *desententialization*. Considering, in turn, the changes affecting the internal syntax of a subordinate clause (*desententialization* in the narrow sense) and the changes affecting its distributional properties (*nominalization* in the broad sense, including *adverbialization/adjectivization*), he proposes the desententialization continuum ranging from sententiality to nominality, and connecting a clause and a verbal noun as two extreme points, cf. (116):

(116) The scale of desententialization (Lehmann 1988: 200)



Lehmann himself does not explicitly proclaim the link between desententialization and finiteness (he rather seems to follow the traditional definition of finiteness, cf. Lehmann (1988: 12), but his work has been cited afterwards as highly relevant in this connection, cf., for instance, Haspelmath (1995: 5) on the definition of nonfiniteness applied to converbs, or Malchukov (2004: 11). For Haspelmath, for instance, the traditional concepts of finiteness and nonfiniteness are just two extreme points on a scale of desententialization, and languages are regarded as showing various intermediate points on this scale.

The order of clausal properties in the scale is supposed to represent the order in which they are lost in the process of desententialization. It is, however, based on Lehmann's general observations and individual language examples rather than on any kind of consistent cross-linguistic analysis (for a similar kind of observations see, for example, Comrie 1976; Givón 2001: chapter 19). The question that one might ask is if these observations hold when tested on a representative language sample. The next two sections present two wide-scale cross-linguistic studies that aimed at establishing the hierarchichal ordering patterns in desententialization, namely Cristofaro (2003) and Malchukov (2004).

4.2.2. Cristofaro's (2003) approach

Cristofaro (2003) has conveyed a broad typological study of subordination, which considered dependent clauses in a sample of 80 languages representing diverse genealogical units and geographical areas. One of the goals of her study was to define implicational patterns in the cross-linguistic coding of complement, adverbial and relative subordination relations as manifested in the sentences containing dependent clauses of the respective types. In order to do that, Cristofaro identifies the inventory of morphosyntactic

phenomena relevant for the encoding of subordination and investigates their various logically possible combinations.

The two major parameters that Cristofaro (2003) takes into account are (1) the form of the verb (dependent clause predicate), and (2) the coding of participants. The complex parameter concerning the form of the verb includes three smaller domains, namely, (a) the expression of the tense, aspect and mood distinctions, (b) person agreement, and (c) case marking and adpositions. For the expression of TAM distinctions and person agreement the variation as analyzed by Cristofaro is threefold: the respective values can be expressed in the same way as in independent clauses, they can be expressed in a different way, or not expressed at all. The case marking, on the other hand, can simply be either available or unavailable. As regards the coding of participants, two deviations are most widely attested: (a) verb arguments may not be expressed in dependent clauses, and (b) verb arguments are expressed as possessors instead of receiving their regular marking. The implicational correlations discovered by Cristofaro in the languages of her sample are listed in (117):

(117) Correlations between deranking phenomena in Cristofaro (2003: 277–284)

1a. A distinctions not expressed → T distinctions not expressed
1b. Person agreement not expressed → T/A/M not expressed ∨ T/A/M special forms
Person agreement special forms → T/A/M not expressed ∨ T/A/M special forms
1c. Case marking/adpositions → T/A/M not expressed ∨ T/A/M special forms
Case marking/adpositions → Person agreement not expressed
2a. Arguments not expressed → T/A/M not expressed
Arguments not expressed → Person agreement not expressed
2b. Arguments expressed as possessors →
T/A/M not expressed ∨ T/A/M special forms
Arguments expressed as possessors → Person agreement not expressed ∨
Person agreement special forms
Arguments expressed as possessors → Case marking/adpositions

Cristofaro (2003: 277–278) suggests accounting for the correlation (1a) in terms of the principle of relevance, as discussed by Bybee (1985). According to Bybee, the universally preferred order of bound morphemes expressing verbal categories reflects the degree of relevance of each category for the interpretation of the verbal stem. Aspect is shown to occur cross-linguistically closer to the stem, because it affects the semantics of the verb, while tense and mood, expressed further away from the stem do not affect the internal constituency of the situation. As a more relevant category, aspect, therefore, is more frequently overtly encoded on dependent clause predicates, and is not expressed only if the less relevant distinctions are not expressed either.

Concerning the more general correlations, Cristofaro proposes two major functional principles as possible explanations. The first principle is related to the particularities in the conceptualization of depenedent states of affairs, which are claimed to be closer to nouns rather than verbs in their cognitive functions, cf. Langacker (1987a, 1987b). Verbs prototypically encode processes (sequentially scanned entities), whereas nouns

prototypically encode things (summarily scanned entities). Whenever a verb is not being used in its prototypical function, it fails to display the full range of categorial distinctions (such as TAM or person agreement distinctions) that are found in the prototypical function, and it may display some of the properties that are characteristic of nouns in their prototypical function, such as case marking, coding of arguments as possessors, or possessive person agreement (Cristofaro 2007: 100). As I will show later in Chapter 5, both the loss of verbal properties and the acquisition of nominal properties are indeed typical for participial relative clauses considered in my study. It should be noted though, that it is not totally clear from Cristofaro's explanation how exactly the conceptualization of a state of affairs as a *thing* pertains to dependent clauses used for adnominal modification, that is, in a prototypical function of an adjective rather than a noun.

The correlations between the impossibility for the verb to take overtly expressed arguments and other properties such as absence of tense, aspect, mood, and person agreement distinctions are, according to Cristofaro (2003: 286–288), best accounted for in terms of another functional principle, namely, a principle of *syntagmatic economy*. This principle in connection to dependent clauses is based on the fact that the subordination relation types involving obligatory sharing of participants between the main and the dependent clause (and, therefore, predetermination of the participants of the dependent clause) are a subset of those involving predetermination of the time reference, aspect, and mood value of the dependent state of affairs. In other words, there are no subordination relations in which TAM values are predetermined, whereas participants are not. Cristofaro argues, however, that relative relations provide a counterexample to this analysis, since in this case a lack of TAM distinctions and a lack of overtly expressed arguments are motivated in terms of distinct principles. The lack of TAM distinctions is motivated in terms of the cognitive status of the dependent state of affairs (see above), while the lack of overtly expressed arguments is in most cases simply a means of indicating the role of the relativized item, see Section 4.3.5.

The provided analysis of motivations for the lack of TAM distinctions and the lack of overtly expressed arguments in relative clauses is a good illustration of why Cristofaro's (2003) work is especially relevant for the current study. Importantly, apart from establishing cross-constructional implicational patterns in subordination encoding, Cristofaro also examines separately different types of subordination relations, including relative relations, cf. Cristofaro (2003: Chapter 7). The book, therefore, provides an overview of the deranking phenomena specific for relative clauses, as well as their distribution across different relative constructions, and proposes certain functional-typological explanations of the observed tendencies. The most important of Cristofaro's findings and observations on these matters will be further discussed when appropriate.

4.2.3. Malchukov's (2004) Generalized Scale Model

Malchukov's (2004) work is a typological study of transcategorial processes, primarily nominalization and verbalization. The two processes are shown to exhibit similar tendencies with respect to the loss/acquisition of properties. However, in this overview I will only focus on nominalization as more relevant to the current study. In his work,

Malchukov aims at establishing a principled account that would allow to predict the order in which verbal features are lost and nominal categories are acquired. He starts with compiling two respective hierarchies, both of which are based on numerous earlier proposals introduced in earlier typological studies belonging to a variety of theoretical frameworks. The hierarchy of verbal features is based primarily on the studies of Bybee (1985), Noonan (1985) and Croft (1991), as well as on some works in the framework of Functional Grammar (e.g. Dik 1991, 1997; Hengeveld 1992)[23]. The resulting hierarchy is presented in (118) below[24]:

(118) Verbal hierarchy (Malchukov 2004: 20)

VERB stem
⊂
voice/valency, direct object, object agreement
⊂
aspectual operators, adverbial satellites with aspectual value (manner adverbs)[25]
⊂
tense and mood operators and corresponding satellites (temporal/modal adverbs)
⊂
subject agreement, clausal subject
⊂
illocutionary force markers

The sign '⊂' should be read as 'entails the loss of', and the generalization, thus, is that the loss of a certain feature in a nominalization construction entails the loss of any feature occupying a more external (lower) position on the hierarchy, e.g. non-expression of tense entails inavailability of illocutionary force markers, etc.

Malchukov's nominal hierarchy stems from the hierarchy of nominal inflectional categories proposed by Lehmann & Moravcsik (2000: 753), and from the layered structure of the noun phrase discussed by Rijkhoff (1992) and Van Valin & LaPolla (1997), see (119):

[23] I will not discuss all the separate hierarchies in any detail here. An overview of relevant literature can be found in Malchukov (2004: 13–25).

[24] Following van Lier (2009), I adopt the visual representations of the hierarchies from Nikitina's (2007) review of Malchukov's book.

[25] The term *operators* is used here to refer to bound morphemes, while corresponding *satellites* are elements external to the nominalization (e.g. adverbs or particles) which express meanings belonging to the same domain.

(119) Nominal hierarchy (Malchukov 2004: 47)

NOUN stem
⊂
classifying/qualitative operators/satellites: singulative/collective markers, noun classifiers, nominal class markers, adjectives
⊂
quantitative operators/satellites: number markers, numerals
⊂
locative/possessive phrases
⊂
determiners
⊂
case markers/adpositions

Contrarily to the verbal hierarchy, here the generalization is that the expression of a certain feature in a nominalization implies the expression of any feature occupying a more external (lower) position on the hierarchy, e.g. if a nominalization receives number marking it must be able to combine with case markers, etc. It is further suggested that the generalizations based on both hierarchies have a functional motivation: external categories on the hierarchies are more readily affected by transcategorial operations than the inner ones, because external operators reflect the syntactic and/or pragmatic function of a given lexical item more directly than internal operators.

The major innovation proposed in Malchukov's work if compared to earlier typological studies is the Generalized Scale Model, cf. Malchukov (2004: 57), which combines the verbal hierarchy and the nominal hierarchy (by attaching the lower part of the nominal hierarchy to the upper part of the verbal hierarchy) and establishes constraints on the possible "mappings" between them. Malchukov supplements the scale with several *blocking effects*, which are essentially based on the fact that some nominal and some verbal categories are functionally too similar to be compatible. That is, in some cases a language has to make choice between taking recourse to nominal or verbal encoding for a particular function. *Subject-blocking effect*, for instance, is responsible for the fact that a verbal argument cannot be expressed in a verbal and nominal way at the same time, hence ungrammaticality of structures of the type **I saw John's he going*. The combination of the hierarchical scale with the blocking effects yields three major types of nominalizations differing in the ratio of verbal and nominal properties, cf. Malchukov (2004: 66–69).

In addition to the factors outlined above, Malchukov emphasizes the importance of language-particular structural factors for the outcome of transcategorial operations. In particular, he shows that other things being equal, languages favour the retention of structurally innermost categories and the loss of structurally outermost ones (which is, obviously, parallel with the functional hierarchies discussed earlier). For instance, in Limbu (Mahakiranti; Bhutan, India, Nepal) aspect markers are lost in nominalizations/participles, while tense marking is retained, cf. van Driem (1987). Malchukov (2004: 40) suggests explaining this by the fact that aspect markers in Limbu are external to tense, and therefore are structurally more likely to be lost. Also, some

categories can be expressed cumulatively in certain languages, such as subject and object agreement (Maricopa; Cochimi-Yuman > Yuman, United States), or verbal agreement and voice (Modern Greek), cf. Malchukov (2004: 111–114). As a result, these categories can be either both retained or both lost in the process of nominalization. A consequence from the latter observation is that languages belonging to different morphological types can differ with respect to the graduality of transcategorial changes they exhibit: agglutinative languages, where one form normally performs one function, therefore, allow for more gradual deverbalization than fusional languages.

To summarize the section, Malchukov's proposal is to apply competing motivations approach to the typology of nominalization. The hierarchy constraints, as well as blocking effects, are, in their essence, functionally motivated. On the other hand, a number of structural factors can interfere with the hierarchy constraints. Other factors at play include economy (which disfavours the expression of categories recoverable in a given context), and diachronic processes, which may also influence the outcome of transcategorial operations. Malchukov (2004: 131) explicitly mentions that even though the Generalized Scale Model is not restricted to any particular lexical categories (e.g. nouns or verbs), it presupposes the existence of feature hierarchies for the lexical category in question to be applied. The model, therefore, cannot be directly applied to participles ("verbal adjectives"), since no feature hierarchies are available specifically for them. Nevertheless, the model can provide some important insights for the study of participial relative clauses, at least because many of them are introduced by forms that are best classified as belonging to the category of nouns within individual languages.

4.2.4. Nikolaeva's (2013) canonical approach

It has often been noticed by numerous typologists that various criteria for desententialization/nominalization discussed in the previous sections do not necessarily match. This actually served as a motivation for the scalar approach to finiteness in the first place. However, Nikolaeva (2013: 117–118) provides several examples which not only challenge the binary approach to finiteness, but also contradict the proposed functional hierarchies and implications discussed in the previous sections. For instance, Cuzco Quechua nominalizations, according to Lefebvre and Muysken (1988), express verbal agreement but not tense, despite the fact that the former is generally regarded as a more external category than the latter. Another example cited by Nikolaeva comes from Ledgeway (1998), who shows that within Romance languages alone one can find all possible combinations of tense and agreement features on dependent verbs, including agreement inflected Portuguese infinitives and Old Neapolitan gerunds and participles.

Based on these observations, Nikolaeva concludes that the functional pressures proposed earlier only work as very general tendencies, whereas the parameters crucially implicated in the definition of finiteness appear not to stand in exceptionless implicational relations and are better viewed as a set of discrete unrelated properties. She, therefore, proposes to treat (non-)finiteness in the vein of canonical typology (cf. Corbett 2005, Brown et al. 2013), an approach developed to address variation in phenomena which do not easily fit into binary standards. Canonical typology employs the criteria used to define

particular categories or phenomena to create a multidimensional space in which language-specific instances can be placed. Each instance can, consequently, demonstrate greater or lesser proximity to a canonical ideal[26]. The list of criteria that Nikolaeva considers relevant for canonical (non-)finiteness is presented in (120). The sign '>' should be read as 'more canonical then':

(120) Criteria for canonical (non-)finiteness according to Nikolaeva (2013):

MORPHOLOGY
- C-1: tense marking > no tense marking
- C-2: subject agreement > no subject agreement
- C-3: mood and/or illocutionary force marking > no such marking
- C-4: politeness marking > no politeness marking
- C-5: evidential marking > no evidential marking
- C-6: no switch-reference marking > switch-reference marking
- C-7: nominative subject > non-nominative subject

SYNTAX
- C-8: independent clause > dependent clause
- C-9: subject licensing > no subject
- C-10: morphosyntactic expression of information structure > no such expression

SEMANTICS:
- C-11: assertion > no assertion
- C-12: independent temporal anchoring > no independent temporal anchoring
- C-13: information structuring > no information structuring

A distinctive feature of Nikolaeva's approach is that among the criteria considered crucial for (non-)finiteness she explicitly mentions not only structural properties of the form and its behavioral potential, but also semantics of the construction[27]. This is in congruence with the view of Sells (2007), who suggests three ways in which the term 'finite' can be used: (a) finiteness as a property of a verbal form, (b) finiteness as a clausal attribute, and (c) semantic finiteness related to assertion or some such property of an utterance. All the semantic criteria are conditions on the independent interpretation of a clause. The relation between morphological finiteness and the assertive speech act has been pointed out in numerous typologically oriented studies, cf. Klein (1994, 1998), Nikolaeva (2007c), and Kalinina (1998, 2001) with special reference to participles. The discussed evidence includes, for example, the use of morphologically non-finite forms in dependent rather than independent clauses, and the lack of certain prototypically finite

[26] As can be clearly seen from (120), the criteria are not mutually independent (cf., for instance, C-10: morphosyntactic expression of information structure, and C-13: information structuring), and the list, therefore, is not immediately suitable for any kind of quantitative measuring of the proximity to the canonical ideal of finiteness.

[27] Semantics, of course, has also been taken into account in other scalar approaches to (non-)finiteness and related domains, but it was mostly used as an explanatory factor for certain observed structural or behavioral properties. Nikolaeva, on the other hand, puts semantics in one row with morphology and syntax as a phenomenon of the same level.

distinctions in imperatives, optatives and other non-assertive speech acts. The canon of finiteness is also linked to the presence of independent (deictic) temporal anchoring, whereas in non-finite clauses the temporal and logophoric centres must be determined anaphorically. Finally, according to Nikolaeva, the canonically finite clause must be pragmatically structured, i.e. contain the asserted and the presupposed part, which is a property commonly lost in many types of embeddings.

Unfortunately, semantic criteria of this type can hardly be discussed in a wide-scale cross-linguistic survey, chiefly due to the lack of adequate information for many languages. Another criterion discussed by Nikolaeva is, however, of more practical relevance to the current study, namely C-5 concerning evidentiality. This category and its markers are not discussed separately in the other studies outlined in this chapter, while it can in fact play an important role in the desententialization of participial relative clauses. This issue will be further addressed in Section 4.3.1. Another criterion belonging to the same category, namely politeness, appears as one of the crucial indicators of finiteness in Bisang's (2007) approach. In my data, however, it did not prove to be relevant for any of the languages.

4.2.5. Conclusions on the scalar approaches to finiteness

Current section has provided an overview of four approaches to finiteness/desententialization which I consider most relevant for my study. All of them take into account different parameters concerning the deviation of the non-finite/desententialized clause from the independent clause standard, account differently for the combination of these parameters, and, where applicable, suggest different explanations. In my work, I am not aiming at testing consistently any of the proposed hierarchies or scales (Lehmann 1988, Cristofaro 2003, Malchukov 2004), neither am I going to systematically assess all of the participial forms in the sample with respect to their proximity to the canonical ideal of finiteness (Nikolaeva 2013). For a significant share of languages examined in the study, the information on many relevant criteria is simply not available in their descriptions. However, I consider it useful to bear in mind all of the outlined approaches when analyzing the data, since they highlight problematic issues, and provide valuable insights for the analysis.

4.3. Parameters considered in this study

In the previous section, I have discussed a number of parameters that have been considered relevant for desententialization and nominalization of dependent clauses, as well as attempts undertaken by typologists to organize these parameters into hierarchies. As I mentioned in the introduction to the present chapter, these parameters have mostly been investigated in the broad context of subordination in general, which resulted in the enormous diversity among the examined structures. Consequently, very few things could be fruitfully compared across constructions. In this study, I would like to apply the

aforementioned parameters exclusively to participial relative clauses, a significantly narrower domain, which, as I will show further, has certain distinctive features that are not characteristic of other types of deranked dependent clauses. However, certain clarifications should be done concerning each of these parameters before they can be investigated with respect to the available data on participles in the languages of the sample. In the following sections, I will discuss the morphosyntactic manifestations of participial desententialization/nominalization one by one, namely restrictions on TAM (4.3.1), peculiarities in the domain of negation (4.3.2), verbal subject agreement (4.3.3), nominal agreement with the modified noun (4.3.4), and deviations in argument expression (4.3.5).

4.3.1. TAM expression

The TAM domain comprises such a huge range of various phenomena, including those particularly relevant for desententialization, that a number of clarifications are necessary before I can proceed to analyzing the data. The first and the most obvious thing to note is that this domain is clearly not an elementary one, but rather contains at least three smaller subdomains, tense, aspect and modality, which interact with each other in complex ways. The fact that these three features are actually hard to untangle in individual languages, as well as cross-linguistically, has been pointed out in a great number of studies, such as Comrie (1976a, 1985), Hopper (1982), Dahl (1985), Palmer (1986), Bybee, Perkins and Pagliuca (1994), and many others, see also Uusikoski (2016) for a recent overview. In this section I will, however, start from discussing them separately (in the order corresponding to various hierarchies of verbal features, e.g. Bybee 1985), and then provide the justification for considering the domain on the whole in the study of participial relative clauses.

Aspect is concerned with the internal temporal constituency of the situation (Comrie 1976: 5), that is, how the situation extends over time. The two major types to be distinguished here are lexical aspect (Aktionsart), which is inherent to the verbal stem and not marked formally, and grammatical aspect, a grammatical category with certain formal encoding. In a way, both types are relevant for the typology of participles. Lexical aspect, for instance, can indirectly set constraints on the formation of certain participial forms: as I showed in Section 3.3.5, absolutive participles in many languages are resultative and, thus, can only be derived from telic verbs. Malchukov (1995) also reports that the nonfuture participle in Even conveys the meaning of priority if derived from telic verbs, and the meaning of simultaneity when derived from atelic verbs. On the other hand, grammatical aspect (perfective/inperfective distinction, as well as quantitative aspect, such as iterative) is more relevant for the topic of the current and following chapters, namely desententialization. Since aspect has been shown by numerous authors to be one of the most internal verbal categories (see, for example, Malchukov's hierarchy presented in Section 4.2.3), it is almost never lost completely in participial forms. At the same time, it does demonstrate a lot of peculiarities in desententialized forms, as I will show further in Section 5.2.

Tense is usually understood as a category that relates the time of the situation referred to to some other time, cf. Comrie (1976: 1–2). If it is the moment of speaking that is taken as a reference point, the tense is referred to as *absolute*. However, in complex sentences, languages often relate the time of the situation expressed in the dependent clause to the time of the situation expressed in the main clause. This is known as *relative* time reference. For certain types of subordinate relations, the temporal relation of the situation expressed in the dependent clause with respect to the situation expressed in the main clause is basically fixed. For instance, complement clauses introduced by perception verbs typically imply the meaning of simultaneity (relative present), e.g. *I saw him playing in the garden*, whereas adverbial purpose clauses make sense if the situation expressed in the dependent clause is understood as (potentially) following the situation in the main clause (relative future), e.g. *He came here to bring me this book*. These constructions, therefore, obligatorily feature a particular type of relative tense meaning. In their work on nominalizations, Comrie & Thompson (2007: 347) remark that the interpretation of the tense category as relative rather than absolute tense is very common generally with nonfinite verbal forms.

On the other hand, unlike some other subordination relations, relative relations, as noted by Cristofaro (2003: 198), have no implications about the time reference (or aspect value) of the two situations, since the speaker can arbitrarily select two situations simply on the grounds that they share a participant. The tense of a participle, therefore, can easily be either relative or absolute. In fact, for many languages it is very hard to determine whether a relative clause predicate has relative or absolute time reference. Neither the authors of grammars tend to specify that in their descriptions (a rare exception is, for instance, Bergsland's (1997: 281) description of Aleut, which states clearly that participial tense markers refer to the matrix clause rather than to the moment of speech, see also Nikolaeva (2014: 316) on Tundra Nenets). Moreover, in some languages the situation can be very complicated, and the participial tense cannot be classified either as absolute or as relative, as shown in Shagal (2011) for Russian. Due to these issues, I will not further aim at consistently distinguishing between relative and absolute tense in participles, unless it is especially relevant for a certain language.

The domain of *modality* itself can be decomposed into several levels, which are represented (starting from the outermost) in the hierarchy proposed by Malchukov (2004: 18) with reference to Van Valin & LaPolla (1997), Dik (1997), Van der Auwera & Plungian (1998), Cinque (1999), and Nuyts (2000), see (121):

(121) illocutionary > evidential > epistemic > root modality

As the outermost ones among all verbal operators (cf. Lehmann's desententialization scale or Malchukov's verbal hierarchy), illocutionary force markers, such as Quechua validators (Cole 1985) and various assertive particles in other languages, are the first to be lost in the process of desententialization. No languages in my sample allow for participial relative clauses containing any markers of this type, so this layer is not particularly relevant for the current discussion. Epistemic modality (the coding of the degree of commitment to the statement expressed by the speaker), and evidentiality (the coding of the source of information) are also shown to belong to a fairly external level cross-

linguistically. The only language in my sample where evidential distinctions can be regularly expressed within a participial relative clause is Matsés (Pano-Tacanan > Panoan; Brazil, Peru), which will be discussed further in Section 5.2.5. Thus, the only modal layer that is attested and thereby cross-linguistically relevant for the typology of participial relative clauses is root modality, also referred to as deontic modality, which pertains to the external circumstances that make the actuation of the situation necessary or allowed, cf. Cristofaro (2003: 60).

As I mentioned in the beginning of the section, in many cases the distinctions between the expression of tense, aspect and modality in a language are notoriously hard to draw. A widely recognized example of this problem is future tense, which in many languages has modal as well as tense value, and can thereby be considered as much a mood as a tense, cf. Lyons (1968 : 275–281), Comrie (1976: 2). The distinction between tense and modality seems, therefore, especially subtle (if existing) for the forms labelled as future participles in various languages. Haspelmath (1994: 162–163) shows that future/necesitative/potential meaning is common for passive participles, and it is indeed the case, for instance, for the Armenian participle in *-ik'* (Dum-Tragut 2009), or Georgian participle in *sa-V(-el)* (Hewitt 1995). However, it is attested with other types of orientation as well. For example, in Kokama-Kokamilla (Tupian > Tupí-Guaraní; Peru; Vallejos Yopán 2010), forms in *-tara* employed exclusively for A relativization tend to express a potential meaning, which is additionally reflected in the fact that these forms are used to introduce purposive adverbial clauses. Apart from that, in Meadow Mari the participle in *-šaš* with the meaning of future or deontic modality, is contextually oriented (Brykina & Aralova 2012). The observed phenomena can presumably be explained by pragmatic inefficiency of characterizing a participant by referring to an event that has not yet taken place, but is regarded as factual. This is, however, exactly what pure future participles are supposed to do. Due to this, in many languages, participles expressing future meaning are also used to describe modified nouns with regard to possible or necessary situations. In addition to modality, the meaning of future can also alternate within a participial form with a certain aspect value, cf. future-habitual participle in *-ee* in Telugu (South-Central Dravidian; India; Krishnamurti & Gwynn 1985).

Another connection within the TAM domain has to do with the interaction between aspect and relative tense. The three generally possible values of the relative tense category are priority, simultaneity, and posteriority (past, present, and future relative tense respectively). However, as I have noted above, future participles with non-modal meaning are cross-linguistically fairly uncommon, so the meaning of posteriority is also very rarely attested in participial relative clauses. The temporal contrast is, therefore, mostly between relative past and relative present. A very typologically common and central distinction in the aspectual zone, is that between perfective and imperfective. As defined by Comrie (1976: 16), perfectivity indicates the view of a situation as a single whole, without distinction of the various separate phases that make up that situation, while the imperfective pays essential attention to the internal structure of the situation. This opposition, though seemingly formulated in purely aspectual terms, has been shown to demonstrate a significant interaction with temporal properties of situations, in that perfective verb forms are usually taken to refer to past events, whereas imperfective aspect is known to intertwine with the present tense, cf. Dahl & Velupillai (2013). In participial

relative clauses, the connection reaches the point where the two categories are almost impossible to discern. A number of languages basically distinguish between two types of participles, those referring to accomplished events preceding the situation expressed in the main clause (perfective/relative past), and those referring to ongoing situations simultaneous to the situation expressed in the main clause (imperfective/relative present). Tellingly, in the descriptions of individual languages such participles can be labelled either as past/present, cf., for instance, Beserman Udmurt (Uralic > Permic; Russia, Brykina & Aralova 2012), or as perfective/imperfective, cf., for instance, Tsafiki (Barbacoan; Ecuador; Dickinson 2002).

Taking into account the points made in this section, despite the outlined multifacetedness of the TAM domain, in this study I will regard it as a single, though complex, parameter. I will dinstinguish between tense, aspect and modality meanings expressed by participles whenever possible, but it is also very important to bear in mind that this distinction in many cases cannot and, therefore, should not be made.

4.3.2. Negation

One more parameter relevant for the distinction between finite and non-finite structures is negation. So far, typological work on negation has mostly focused on standard negation, i.e. the basic way(s) a language has for negating declarative verbal main clauses (Miestamo 2003, 2005). There has been no systematic cross-linguistic investigation of negation in subordinate clauses, although it has been observed that languages can use different kinds of negative strategies in these contexts. A recent study of negation in Uralic languages shows that especially in non-finite subordinate clauses, standard negative strategies are often blocked, and special non-finite forms may be used to fill this functions (Miestamo et al. 2015: 21–22).

Negation as a parameter for desententialization/nominalization has not been widely discussed in cross-linguistic studies. Lehmann (1984) does suggest that at some stage of strong desententialization the polarity of the subordinate clause is affected. However, he only provides an example from Jakaltek (Mayan, Guatemala), where a non-finite complement clause simply cannot be independently negated, and does not discuss any other deviations from the main clause negation. Malchukov (2004: 18) mentions negation when discussing the relative ordering of verbal categories in the hierarchy proposed by Bybee (1985), as well as in those developed within Functional Grammar and Role and Reference Grammar (Foley & Van Valin 1984, Dik 1991, Hengeveld 1992, Dik 1997, Van Valin & LaPolla 1997). He comments that the position of negation in such hierarchies is highly problematic, since negation operators may differ in scope and pertain to different semantic layers. Due to this, while admitting the relevance of negation for the phenomenon of nominalization, Malchukov, however, disregards it almost completely in his study.

In the domain of subordination, negation has been primarily studied in the context of complement clauses. The most prominent phenomenon here is Neg-Raising (or Neg-Transport), which was introduced to account for the near equivalence of the sentences like *I don't think that she came* and *I think that she didn't come*, which feature negation in the

main and the complement clause respectively, see, for example, Fillmore (1963), Ross (1973), Bartsch (1973), and Horn (1978) for early accounts. Other subordination relations received much less attention in this respect, so the interaction of negation with the desententialization of relative clauses has not yet been investigated in typological literature. In Section 5.3, I will provide an overview of negation strategies employed in participial relative clauses with particular attention to those demonstrating deviation from the standard negation in respective languages.

4.3.3. Subject agreement

As discussed in the introduction to the current chapter (4.1), the presence of person and number marking in a verb form has been regarded for centuries as the standard way of distinguishing between finite and non-finite verbs. This is, of course, understandable from an Indo-European perspective, but it also makes perfect sense from the point of view of various hierarchies of verbal features. Both Cristofaro's (2003) and Malchukov's (2004) data-driven studies show that verbal agreement with the subject is among the first features to be lost in the process of desententialization/nominalization[28]. Thus, for languages featuring subject agreement in independent sentences, it is a very likely and notable signal of deranking.

It is important to emphasize that in this section (and, correspondingly, in Section 5.4) I am only concerned with the subject agreement of the verbal type, i.e. identical or very close to that attested in independent sentences. The expression of subject on the participial form by means of possessive affixes, which is typical of dependent clauses in many languages, is regarded as a part of the broader phenomenon of expressing subject as a possessor, and is, therefore, discussed in the chapter on participant encoding, see in particular Section 6.2.1.

In Malchukov's (2004) version of the hierarchy of verbal properties, verbal subject agreement is mentioned together with the ability of the dependent clause predicate to have a clausal subject, see (118) in Section 4.2.3. Interestingly, according to my data, verbal agreement with the subject can be lost even if the subject of the dependent clause retains its sentential form. For instance, in Kalmyk, although the subject of a participial relative clause can occur in the nominative case in certain contexts, the dependent predicate never receives any agreement markers, cf. (122a). On the other hand, the predicate of an independent sentence agrees with the nominative subject, irrespectively of whether it appears in the finite form or the same participial form as in the relative clause, cf. (122b):

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[28] In his study, Malchukov considers object agreement along with subject agreement, and argues that the former pertains more directly to verbal valency and, therefore, has a narrower scope (hence its higher position in the hierarchy). In my sample, there are no languages that would either confirm or contradict this claim. One language for which this observation might be relevant is Mapudungun (Araucanian; Chile), where, according to Zúñiga (2000: 20), non-finite forms employed in relative clause formation either do not take agreement markers referring to arguments, or allow to express one person less than finite verbs. However, there seems to be no information regarding the particular argument appearing on non-finite verb forms. Therefore, I will only discuss subject and not object agreement in this study.

(122) Kalmyk (Mongolic; Russia; personal field notes)

a. [*dotrə-n*^{j} ***bi*** ***kevt-xə***] *avdər širä-n* *öör*
inside-POSS.3 **1SG.NOM** **lie-PTCP.FUT** chest table-GEN near
zogs-ǯa-na
stand-PROG-PRS
'The chest in which I will be lying is next to the table.'

b. ***bi*** *avdər* *dotər* ***kevt-ǯü-nä-v*** / ***kevt-xə-v***
1SG.NOM chest inside **lie-PROG-PRS-1SG** / **lie-PTCP.FUT-1SG**
'I am lying in the chest/I will be lying in the chest.'

In general, as I will show in Section 6.2, participial relative clauses following main clause pattern in subject encoding are not at all uncommon. As for verbal subject agreement, in conformity with the documented cross-linguistic tendencies, I was able to find very few languages where participles lack subject agreement present on independent predicates but at the same time cannot be classified as deranked otherwise. The (potential) exceptions are discussed in some detail in Section 5.4.

4.3.4. Nominal agreement with the modified noun

Nominal agreement of non-finite relative clause predicates with the modified nouns has received very little attention in the previous typological works on subordination. The main reason for this is the fact that adjectival agreement, which is in question in this case, is only relevant for the contexts of adnominal modification, while all the relevant cross-linguistic studies focused on the domain of subordination/nominalization in general, and aimed at allowing for cross-constructional comparison, cf. Lehmann (1988), Cristofaro (2003), Malchukov (2004).

As I have shown in Section 2.4, the participle/nominalization syncretism is an extremely widespread phenomenon, and in many cases it is not possible to identify the primary function of the respective form within a language. However, among the languages exhibiting nominal agreement between non-finite relative clause predicates and modified nouns, we can identify two types whose agreement patterns differ precisely because of the categorial status of participles (verbal adjectives vs. verbal nouns). First, there are languages that have typical adjectival agreement (in number, gender and possibly case) as a way to show the connection between a highly adjectival participle and a noun, for instance, Russian or Lithuanian. In the languages of the second type, the non-finite relative clause predicate and the modified noun are, in fact, just two nominal elements appearing in apposition. The latter case seems to be especially common in South American languages, cf., for instance, Fleck (2003) on Matsés (Pano-Tacanan > Panoan; Brazil, Peru). Gamble (1978: 126) proposes the description of this type for Wikchamni (Yokutsan > Yokuts, United States). According to his analysis, appositional clauses are subordinate clauses containing a nominalized verb, usually an agentive, or passive verbal noun, and are juxtaposed to a main clause noun. Appositionals have a relative clause function, modifying a main clause noun, and are syntactically bound to the noun they modify by agreement in case marking. Interestingly, for some languages of the second

type, the existence of case marking on the participle (action/participant nominalization) is reported to be a sign of a very week grammaticalization of the relative construction. In such languages (for instance in Desano; Tucanoan), it seems, it is exactly the lack of "agreement" in case that actually signals that we are dealing with a real relative clause, cf. Miller (1999: 149). The detailed account for such cases would, however, require deep syntactic analysis of the respective constructions, for which we do not have enough data in the grammars. Therefore, in Section 5.5, which is concerned with the patterns of nominal agreement between participles and the nouns they modify, I will consider all the instances of cross-referencing the nominal features of the modified noun on the adnominal modifier attested in the sample irrespective of the individual motivations.

4.3.5. Participant encoding

As pointed out by Cristofaro (2003: 201), relative clauses have an important peculiarity with respect to participant expression if compared to other types of dependent clauses, namely, they, by definition, obligatorily share a participant with the main clause. Various options for the representation of the shared participant within the relative clause are usually referred to as different *relativizing strategies*, cf. Comrie & Kuteva (2013a, 2013b). As I have shown in Section 2.3.1, in participial relative clauses the relativized participant can be absent (*gap strategy*), represented by a resumptive pronoun (*pronoun-retention strategy*), or undergo no changes whatsoever if the language in question features internally headed relative clauses (*non-reduction strategy*). The way how the relativized participant is expressed does not, however, have a direct connection to the deranking of the relative clause (although prototypical instances of participial relative clauses are said to employ gap strategy, cf. Lehmann (1984). Thus, in the discussion of participant encoding in participial relative clauses, which will take place in Chapter 6, I will focus on the encoding of the participants other than the relativized one, that is, A participants in case of P relativization, P participants in case of A relativization, S/A participants in case of locative relativization, etc.

An important remark is in order here, regarding the notion of *subject* in participial relative clauses. The term *subject* in general has been amply discussed in linguistic literature, and can be understood differently by different authors following different approaches. In this study, I will basically use this term to refer to the A participant of a clause that has undergone relativization if the clause is transitive, e.g. *nay-ka* 'I' in the Korean example of P relativization in (123a), or to the S participant of an intransitive relativized clause, e.g. *Peter-ka* 'Peter' in the example of locative relativization in (123b):

(123) Korean (Koreanic > Korean, South Korea, North Korea; Shin 2003: 27, 33, my slightly modified glosses)

a. [***nay-ka*** *sa-l*] *cha-nun* *hankwukcey-i-ta*
I-NOM buy-REL.FUT car-TOP Korean.made-is-END
'The car which **I** am going to buy is Korean-made.' (← **I** am going to buy a car)

b. [***Peter-ka*** *ilha-nun*] *siktang*
Peter-NOM work-REL.PRS restaurant
'The restaurant where **Peter** works.' (← **Peter** works in a restaurant)

Classifying the subjects of Korean participial relative clauses as such is fairly uncontroversial, since they bear nominative marking and otherwise behave as regular subjects of independent sentences. In other languages, however, some problematic cases can be found. The major type of such problematic cases concerns relativization by means of forms inherently oriented towards P participants, that is, passive participles. As I showed earlier in Section 3.3.3, cross-linguistically these forms commonly demonstrate properties of prototypical passives, including the pragmatic demotion of the A participant. Moreover, we have seen that at least in some languages the patient of the underlying situation behaves syntactically as the subject of the participial relative clause. For instance, in Modern Standard Arabic, it triggers verbal agreement in gender and number on the relative clause predicate, cf. example (61) and the accompanying discussion. In such cases, it is clearly improper to refer to the A participant as the subject of the relativized clause. At the very least, it would be confusing, even if we intend to mean *semantic subject* as understood, for instance, by Mel'čuk (1988: 167). On the other hand, agents in passive relative clauses ultimately do correspond to the A participants of the situation, and it makes sense to consider their encoding together with underlying A participants in other types of relative constructions. Due to the outlined issues, in what follows I will discuss all the instances of A/S participant expression in participial relative clauses together, refraining, however, from using the term *subject* in unclear cases. For A participants in relative clauses introduced by passive participles, I will use the term *agent* instead.

As it is the case with many other observations on mixed categories, most of the formulated generalizations on non-standard participant encoding concern different types of nominalizations rather than participles or converbs. Comrie (1976) noted that the subject is more likely to receive possessive marking than other verbal arguments. As Malchukov (2004: 10) puts it, both A/S and P participants may retain sentential encoding or both may be genitivized, but if only one argument is genitivized, it will be A/S while P may retain its sentential marking. Koptjevskaja-Tamm (1993) introduced a more elaborate typology of action nominalizations defining several cross-lingustic patterns in argument marking. Argument encoding in participial relative clauses, however, has not been studied in its own right. According to Cristofaro's (2003: 207–208) observations, the coding of arguments as possessors is quite rare in relative clauses, and is not subject to any constraints other than that the argument coded as a possessor should not be the relativized one. As I will, however, show in Chapter 6, if one only takes into consideration the languages featuring otherwise deranked relative clauses, this type of participant encoding is not at all uncommon. Moreover, it is possible to establish certain tendencies as to which participants are more likely to be encoded as possessors, see Section 6.5.

In principle, "the conversion of verbal into nominal government" as mentioned by Lehmann (1988), can affect not only argument encoding, but also the choice of modifiers. Comrie & Thompson (2007: 344), for instance, illustrate this by an example from English. In the independent sentence *The enemy destroyed the city rapidly* the finite verb is modified by the adverb *rapidly*. The corresponding nominalized construction *the enemy's*

rapid destruction of the city, on the other hand, features the adjective *rapid*, which attributively modifies the derived verbal noun. In my sample, however, I have not observed any changes in the expression of modifiers in participial relative clauses[29]. Therefore, Chapter 6 will only be concerned with the peculiarities of participant expression.

4.4. Summary and conclusions

In this chapter, I started with providing an overview of the most representative scalar approaches to desententialization/nominalization. The sections in the second part of this chapter further introduced various ways of desententializing the predicate that are relevant for participial relative clauses. It should be emphasized that these criteria should not be considered as the markers that signal desententialization in each particular instance of participial relativization. They rather represent various ways in which participial relative clauses can differ from independent clauses within a language.

As I have shown in this chapter, all of the approaches recognize two main domains in which the difference between dependent and independent forms may lie, the verb form itself and the encoding of various clausal participants. I will further discuss these two domains based on the actual language data collected for this study in two separate chapters following this one. Chapter 5 will focus on the deviations related to the participle as a verb form, while Chapted 6 is concerned with the argument encoding in participial relative clauses.

[29] This can be regarded as a reflection of the fact that participles have less in common with underived nouns than various types of nominalizations.

5. Morphological desententialization of participial relative clauses

5.1. Introduction

In the previous chapter, I have shown that an important type of the manifestations of desententialization/nominalization in participial relative clauses is the loss of certain verbal properties characteristic of independent clause predicates. This chapter provides an overview of such manifestations attested in the languages of the sample. It is important to note, though, that each of the following sections only deals with part of the language sample investigated in this study. This happens for two main reasons. Firstly, for some languages, no data is available regarding particular phenomena. For example, a description can focus on the range of participants a participial form can relativize, but provide no or very little information on the temporal properties of this form. Secondly and more importantly, for many languages certain parameters of desententialization are simply irrelevant. For instance, Cofán (Cofán; Ecuador; Fischer & van Lier 2011) exhibits very little verbal inflection in general, and does not mark tense overtly in either main or in subordinate clauses. The (none)xpression of tense, therefore, cannot serve as a desententialization criterion in this language[30]. Similarly, many languages do not feature any verbal agreement with the subject, or nominal agreement with the modified noun, so the former obviously cannot be lost, and the latter cannot be acquired.

5.2. TAM expression

As I explained in Section 4.3.1, in this study I consider the TAM domain as a single parameter for desententialization. Its varied manifestations will be discussed in the current section. In Section 5.2.1, I will introduce two major ways in which the restrictions on TAM are manifested in the languages of the sample. I will then discuss each of these ways in more detail, and provide several specific examples of attested restrictions in Sections 5.2.2 and 5.2.3. In Section 5.2.4, I will consider the participial forms which are most restricted with respect to TAM meanings and do not allow for any contrasts whatsoever. Finally, in Section 5.2.5 I will summarize the tendencies observed in TAM restrictions exhibited by participles in the languages of the sample, especially with regard to the predictions made by various hierarchies of verbal features.

[30] The expression of verbal inflectional categories in the Cofán main clauses is limited to the marking of imperfective (-*'je*) and imminent completive (-*ji*) aspect, and the expression of irrealis mood (-*ya)*. None of these markers can occur in participial relative clauses introduced by the marker -*'su*, so the Cofán participial relative clauses can be considered desententialized with respect to the TAM domain.

5.2.1. Variability in restrictions manifestation

Before discussing possible restrictions that participles can exhibit in the TAM domain, it is necessary to introduce the important opposition between the two types of participial markers observed in the languages of the sample. Markers of the first type simply indicate the participial status of the form, and do not themselves express any aspectual, temporal, or modal contrasts. I will refer to these markers as –TAM participial markers. An illustrative example can be found in Malayalam, where a –TAM participial form in *-a* can incorporate a considerable number of regular aspectual (e.g. perfective or progressive), temporal (e.g. past), and modal (e.g. debitive) affixes, cf. (124)[31]:

(124) Malayalam (Southern Dravidian; India; Asher & Kumari 1997: 327, 326)
a. [***paɻhiccirikkeeɳɫiyirunna***] *kaaryyaŋŋaɻ*
learn.DEB.PFV$_1$.PST.PTCP thing.PL
'things that (one) should have learnt'
b. [***paɻhikkappeʈʈukoɳɫirunniʈʈuɳɫaayirunna***] *paaʈʈə*
learn.PASS.PROG.PFV$_2$.PST.PTCP song
'the song that had been being learnt'

Participial markers of the second type, +TAM participial markers, do not only derive a participle from the verb stem, but also convey some information on the TAM meaning of the resulting form. As a consequence, the participles in the language can form their own TAM paradigm. In Nanga, for example, such paradigm consists of the perfective participle in *-sɛ̀*, cf. (125a), and the imperfective participle in *-mì*, (125b):

(125) Nanga (Dogon, Mali; Heath, ms.: 273, 275)
a. *nàŋà* [*ǐ:^{n}* *èmɛ̀-sɛ̀*] *né*
cow.L 1SG.SUBJ milk-PTCP.PFV DEF
'the cow that I milked'
b. *nàŋà* [*ǐ:^{n}* *émɛ́-mì*]
cow.L 1SG.SUBJ milk-PTCP.IPFV
'a cow/cows that I (will) milk'

In some languages, it can be very problematic to classify the participial forms as either –TAM or +TAM. For example, in Wappo (Yuki-Wappo > Wappo; United States), Thomson et al. (2006: 109) describe several dependent forms which can function as predicates of deranked relative clauses and exhibit the same set of distinctions as the finite verb forms existing in the language. Following this analysis, these forms should be classified as +TAM participles. On the other hand, segmentally the dependent forms differ from the finite verbs in a systematic way, in that they lack the final glottal stop, compare

[31] The extensive assimilatory processes characterictic of Malayalam commonly make it impossible to establish exact morpheme boundaries in complex verb forms, but the participles presented in (119) do indeed feature all the affixes indicated in the glosses in the order corresponding to the order of glossing abbreviations.

hak'še? '(he) likes' and *hak'še* 'the one who likes'. It is, therefore, possible to regard the tense markers as the same entities in both paradigms, the glottal stop being the marker that distinguishes between them. In such problematic cases, however, the tense paradigm of participial forms tends to be the same as in main clause verbs, so they are not directly relevant to the discussion of desententialization, see also Marathi (Indo-European > Indic; India; Pandharipande 1997).

Tamil (Southern Dravidian; India; Lehmann 1993: 284) demonstrates a mixture of the two options. It has two participial markers. One of them, *-a*, a –TAM marker, can attach to verb stems with regular past or present tense affixes to form past and present participles respectively. The second one, *-um*, a +TAM marker, is used to form the future participle, and, therefore, can be regarded as both a future tense marker and a participial morpheme at the same time. A similar system, with +TAM participles for past and –TAM participles for present and future, is also attested in Lithuanian (Indo-European > Baltic; Lithuania; Ambrazas 2006: 326–329).

Importantly, +TAM markers with tense values can still combine with the markers belonging to the same domain, for instance, those expressing various aspectual distinctions, cf. Nanai examples in (126), where past participles attach repetitive, inchoative, and resultative markers:

(126) Nanai (Tungusic; Russia; personal field notes)
a. [*mi* *niru-**gu-lu**-xəm-bi*] *daŋsa*
1SG write-**REP-INCH**-PTCP.PST-POSS.1SG book
'the book that I started writing again'
b. [*dərə-či* *lakto-**ča**-xan*] *xaosa*
table-DIR stick-**RES**-PTCP.PST paper
'the paper that stuck to the table'

In Korean, +TAM participial forms differ in their ability to attach certain additional TAM affixes. The past/present relative form in *-n* can attach the retrospective tense suffix, and the past tense suffix; the future/presumptive relative form in *-l* takes the past tense suffix, or, in rare cases, also the future tense suffix; the present tense relative form in *-nɨn* does not take additional tense morphology, cf. Lee (1994), Shin (2003).

There is one final remark that should be made regarding the desententialization of participial relative clauses manifested in TAM reduction. In Chapter 3 on participial orientation, I was examining the properties of individual participial forms. Here, on the other hand, it is crucial in many cases to consider whole paradigms, because it might be the only possible way to capture the deviation from the situation in independent clauses. This will be mostly relevant for the section dealing with +TAM participles (5.2.3).

5.2.2. Restrictions for –TAM participles

In this section, I will consider the forms in which participial markers themselves do not bear any TAM meaning, but certain TAM meanings can be expressed using other means (the forms where additional TAM marking is unavailable will be discussed further in

Section 5.2.4). Theoretically, restrictions in these forms can work in two major ways: either the language imposes constraints only on particular values of a given feature (e.g. future markers are prohibited), or it blocks the expression of the feature altogether (e.g. no tense meanings are allowed within a participial form). In practice, it was only possible to identify the languages of the first type in my sample.

An example of a language exhibiting the first type of restriction is Nivkh, where the only marker unavailable in participial relative clauses but possible (or, rather, obligatory) on independent predicates is the so-called indicative marker *-ḍ* (*-ṭ, -d*), compare the relative and the main clause in (127). Otherwise a fairly wide range of aspectual, temporal and modal markers are available in deranked relative clauses, cf. Gruzdeva (1998: 49–50).

(127) Nivkh (Nivkh; Russia; Nedjalkov & Otaina 2013: 276)
ətək [*ṭ'am* *lu*] + *dəf-toχ* *vi-ḍ*
father shaman sing.PTCP + house-DAT go-IND
'Father went into the house where the shaman sang.'

In Malayalam (Southern Dravidian; India; Asher & Kumari 1997: 304–314), debitive is the only modal marker that occurs in participial forms, cf. (124) above, while many other modal forms are available in independent clauses. Sino-Tibetan languages commonly allow for certain aspectual marking by means of separate morphemes, whereas some other meanings cannot be expressed, cf. Garo (Bodo-Garo, India; Burling 2004), or Japhug rGyalrong (Sino-Tibetan > rGyalrongic; China; Jacques 2016). It seems, therefore, that for desententialization of participial relative clauses the level of particular meanings is more relevant than that of categories. This can be regarded as a further argument in favour of considering the TAM domain on the whole. In addition to the semantics of certain markers, structural factors can also play a role in the constraints on TAM expression in participles. This issue will be further commented upon in Section 5.2.6.

For –TAM participles, the deviation from the main clause standard can also be manifested structurally, that is, in the fact that a language expresses the same TAM meanings in participial relative clauses as it does in independent sentences, but with a different set of affixes. This situation is attested in Warihio subject relative clauses. The regular perfective marker *-re-* used in independent clause predicates corresponds to the past tense *-ka-* in participial forms, cf. (128a) and (128b) respectively, while present/habitual expressed by *-ni-*/*-na-* in independent clauses is unmarked in participial relative clauses, cf. (128c) and (128d):

(128) Warihio (Uto-Aztecan > Tarahumaran; Mexico; Félix Armendáriz 2005: 91, my slightly modified glosses)
a. *tihoé* *tapaná* *umá-si-**re***
man yesterday run-go-**PFV**
'The man ran away yesterday.'
b. *tihoé* [*tapaná* *umá-si-**ka**-me*]
man yesterday run-go-**PST**-NMZ.S/A
'the man who ran away yesterday'

c. *owítiame* *umá-**ni*** *ehpé*
woman run-**PRS** now
'The woman is running now.'
d. *owítiame* [*umá-**Ø**-me* *ehpé*]
woman run-**PRS**-NMZ.S/A now
'the woman who is running now'

Similarly, Seki (2000: 179) reports that in Kamaiurá (Tupí-Guaraní, Brazil), nominalizers employed for relative clause formation combine with specialized tense markers associated with nouns, e.g. nominal past, rather than with regular verbal TAM markers.

5.2.3. Restrictions within a paradigm of +TAM participles

In the languages featuring +TAM participles, the constraints on TAM expression are commonly manifested in the fact that participial markers allow to express less TAM contrasts than finite verb forms. For instance, in Nanai (Tungusic; Russia) there are two distinct participial forms, the past participle and the non-past participle. Unlike participles, indicative verb forms in Nanai exhibit a tripartite tense paradigm, distinguishing also between present and future tense, cf. Table 12:

Table 12. Indicative and participial forms in Nanai (Avrorin 1961: 101–114)

Tense	Indicative verbs	Participles
Past	*ʤobo-ka-Ø* work-PST-3SG	*ʤobo-xa-ni* work-PTCP.PST-POSS.3SG
Present	*ʤobo-ra-Ø* work-PRS-3SG	*ʤobo-j-ni* work-PTCP.NPST-POSS.3SG
Future	*ʤobo-ʒa-ra* work-FUT-3SG	

A very similar situation is also observed in Russian, where the standard language features only present and past participles, while all the three tenses, including future, are available in the finite paradigm.

A frequent type of paradigm reduction is the case when +TAM participles only retain the paradigm of tenses expressed synthetically in the given language (the exact range of meanings expressed by the participle can, of course, differ from that expressed by the finite form). German, for example, only distinguishes between present and past participles, while four more tense forms are commonly regarded as such, namely future, perfect, pluperfect, and future perfect. Noteworthy, in the languages with this type of restriction (mostly Indo-European), many periphrastic tense forms consist of an auxiliary and a participle, cf. Ambrazas (2006: 237–238) for Lithuanian.

Constraints within the paradigm of participles do not necessarily imply that certain meanings can not be expressed in non-finite relative clauses. Languages tend to develop

various means in order to compensate for the lack of specialized participial tense forms. For instance, in Kalmyk, a specialized present tense marker *-na* is only available in independent sentences, while for expressing actual events in relative clauses the only available paradigmatic options are the past participle in *-sən* denoting the events preceding the situation expressed in the main clause, and the future participle in *-xə* denoting the events following the situation expressed in the main clause, cf. examples (129a) and (129b). Despite that, the language does have a regular way of encoding relative present tense, that is simultaneity with the situation in the main clause. For this purpose, Kalmyk employs the marker *-ǯa-* normally used for expressing progressive aspect. This marker can be inserted into any of the two participial forms to convey the meaning of relative present tense. The resulting forms are used in free variation, cf. (129c):

(129) Kalmyk (Mongolic; Russia; Krapivina 2009: 515, 513, personal field notes)

a. *Očər* [*söö-də* ***xää-sən***] *naadʁa örü-n*
Ochir night-DAT **look.for-PTCP.PST** toy morning-EXT
ol-ǯə *avə-v*
find-CVB.IPFV take-PST
'In the morning, Ochir found the toy that he **was looking for** at night.'

b. [*Badma-n* ***xää-xə***] *bičg-igə* *bi*
Badma-GEN **look.for-PTCP.FUT** letter-ACC I.NOM
bult-ul-ǯa-na-v
hide-CAUS-PROG-PRS-1SG
'I am hiding the letter that Badma **will be looking for**.' (Krapivina 2009: 513)

c. [*Bajrta-n* ***xää-ǯä-sən*** / ***xää-ǯä-xə***]
Bayrta-GEN **look.for-PROG-PTCP.PST / look.for-PROG-PTCP.FUT**
miis-in *kičg-igə* *Ajsa* *il-ǯä-nä*
cat-GEN puppy-ACC Aysa caress-PROG-PRS
'Aysa is caressing the kitten that Bayrta **is looking for**.'

It is noteworthy that in several languages of the sample the markers belonging to the reduced +TAM participial paradigm express the meanings pertaining to the features within the TAM domain that are different both from a cross-linguistic and a language-particular point of view. For instance, Tanti Dargwa (Nakh-Daghestanian > Dargwa; Russia; Sumbatova & Lander 2014) distinguishes between preterite, present and potential participles, i.e. two temporal forms and one modal. Even (Tungusic; Russia; Malchukov 1995) exhibits a rich paradigm of five participial forms, that is, nonfuture participle, past participle, necessitative participle, hypothetical participle, and perfect participle. The language, therefore, picks two out of three tense values from the finite paradigm (excluding future), adds two modal meanings, and also a perfect participle, whose main function is to mark perfective aspect and anteriority. This, again, shows a close connection between different TAM subdomains in partipial relative clauses.

5.2.4. No TAM contrasts

Finally, in a considerable number of languages, no TAM contrasts can be expressed overtly within participial predicates of relative clauses. Although theoretically it would be possible that participles in such languages would form a paradigm based on some other criteria, e.g. participial orientation, in reality, in this section I will only discuss the forms that are the only participles in given languages (I will discuss the criteria underlying participial systems in Chapter 7). In principle, participles in these languages can also be classified as +TAM or –TAM, but in some cases it can be fairly hard to draw a strict borderline. A participial form that does not allow any TAM markers can either be highly versatile in its temporal and aspectual characteristics, or it can possess some inherent temporal and/or aspectual properties even though they are not overtly expressed by any marker. Forms of the first type are close to –TAM participial forms, whereas form of the second type resemble +TAM participles discussed above. However, when an assumed +TAM participle does not belong to any paradigm, its TAM meaning is typically more vague. This is why I discuss all the single participles together in the present section.

Participle of the first type, that is a –TAM single participle, is attested, for instance, in Motuna, where the participial verb forms consist exclusively of the verb stem and the derivational participial suffix *-wah*/*-ah* (Onishi 1994: 490). The TAM meaning in such relative clauses is inferred from the context, cf. (130):

(130) Motuna (East Bougainville; Papua New Guinea; Onishi 1994: 527)
… *hoo* [*huuru* ***poruk-ah***] *kurano* *ti-ki* *poruk-oi-juu*
ART.M pig **put-PTCP** basket there-ERG be.put-MID.3S-CONT.DS
'… while the basket with the (meat of a) pig in it was (placed) there.'

Languages with a –TAM single participle can still exhibit certain limitations with respect to their TAM characteristics. Quite in line with the restrictions on modality expression discussed in the previous sections, the participle in *-de*/*-re* in Apsheron Tat (Indo-European > Iranian; Azerbaijan; Authier 2012: 232–233) can have past or non-past reference depending on the context, cf. (131a) and (131b), but is not available in any non-factual contexts:

(131) Apsheron Tat (Indo-European > Iranian; Azerbaijan; Authier 2012: 233)
a. [***rous-de***] *seg* *dendu* *ne-bzeren*
bark-PTCP dog tooth NEG-EVT.strike.3
'A dog **who barks** does not bite.'
b. [***rous-de***] *seg* *kuf-de* *bü*
bark-PTCP dog beat-PTCP be.PST.3
'The dog **who barked** was beaten.'

In fact, even if a language has only one –TAM participial form, which does not exhibit any overt TAM marking, it is still possible that its temporal characteristics are not completely free and inferred from the semantic context. In Ket, non-finite relative clauses are introduced by action nominals, which do not have any intrinsic temporal or aspectual

meaning. According to Nefedov (2012: 200), they do, however, demonstrate the following strong tendency: in subject relatives action nominals usually receive a "present tense" reading, whereas for object relatives the time reference is usually past, compare (132a) and (132b) below. The temporal meaning of these forms is, therefore, conditional on their orientation, reflecting the general present-active vs. past-passive asymmetry described for participles by Haspelmath (1994). When other participants are relativized, the orientation does not seem to play a role any longer. In this case, the temporal characteristics of the Ket action nominal are presumably determined by the inherent properties of the verb from which it is derived: telic verbs are more likely to receive relative past tense interpretation (anteriority), while atelic verbs commonly prefer the relative present tense meaning (simultaneity), compare (132c) and (132d)[32]:

(132) Ket (Yeniseian; Russia; Nefedov 2012: 200, 214–216)

a. *nanbɛt* *qīm*
   [*nan-bed*] *qīm*
   bread-make.ANOM woman
   'a bread-making woman'

b. *tudə* *ilʲbet* *sʲik*
   tu-de [*il-bed*] *sʲuk*
   this-INAN small-make.ANOM trough
   'this broken trough'

c. *qɔˀj* *ɛj* *attos*
   [*qoˀj* *ej*] *attos*
   bear kill.ANOM spear
   'the spear the bear was killed with'

d. *dʌˀq* *quˀs*
   [*dɤˀq*] *quˀs*
   live.ANOM tent
   'a birch-bark tent where someone lives'

If a language makes use of a single participle that does, however, have certain TAM value, the natural question is: what kind of value can it be? According to Haspelmath (1994: 164), "we do not expect to find progressive participles or hesternal past participles or immediate future participles". However, as I have shown earlier, in some languages such meanings are totally acceptable for participles, in particular for –TAM forms, cf. example (124) from Malayalam. On the other hand, the "exotic" TAM meanings mentioned by Haspelmath do not indeed occur as elementary markers in the systems of +TAM participles, and especially in the systems consisting of a single form. Instead,

[32] The same distribution is, in fact, reported by Malchukov (1995: 17) for the nonfuture participle in *-ri*/*-i*/*-si*/*-di* in Even (Tungusic; Russia), a form with a broad range of possible temporal meanings, compare *em-ri* '(one) who came' and *girka-ri* '(one) who walks'.

+TAM single participles mainly fall into two major groups, habitual participles and resultative participles[33].

Examples of clearly habitual single participles can be found in Yimas (Lower Sepik-Ramu > Lower Sepik; Papua-New Guinea; Foley 1991: 404), cf. example (148a) in Section 5.3.2, and in Garrwa, cf. example (133):

(133) Garrwa (Garrwan; Australia; Furby & Furby 1977: 94, glosses and transcription mostly according to Mushin 2012: 202)
nayinda *juka* *ngaki* [*kudukudu-nyi* *kaku-nyi* ***wadamba-warr***]
this.NOM boy.NOM I.POSS.NOM many-DAT fish-DAT **feed-CHAR.NOM**
'This is my boy who eats many fish.'

Interestingly, as reported by Nefedov (2012: 201), Ket action nominals demonstrating versatile temporal characteristics, when oriented towards the subject, do not only refer to the present rather than past, but also convey a more generic or habitual meaning than their finite counterparts. Therefore, in the function of active participles these forms are close in their behaviour to other single habitual participles.

The examples of single (productive) resultative participles can be found in abundance in European languages, such as Albanian (Buchholz & Fiedler 1987, Alexandr Rusakov, p.c.), Irish (Ó Baoill 2009, Jane D'Altuin, p.c.), or Italian (Maiden & Robustelli 2000)[34], cf. example (134) from Italian:

(134) Italian (Indo-European > Romance; Italy; Di Garbo, p.c.)
la *città* [***distrutta*** *da* *Achille*]
DEF.F.SG city(F).SG **destroy.PTCP.PST** by Achilles(M).SG
'the city destroyed by Achilles'

In accordance with Haspelmath's (1994) observations, and in line with the Ket situation described above, habitual single participles in my sample are always oriented towards the A(/S) participant, while resultative participles are oriented towards the P/S participant. This kind of asymmetry, therefore, also does not need any paradigmatic relations within a language, but rather exists on its own.

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[33] Haspelmath (1994: 164) also mentions eventualities (irrealis non-stative events which are nevertheless time-stable enough to characterize a thing) as a possible type of situations expressed by participles and verbal adjectives, e.g. *edible*, *learnable*, etc. This meaning is indeed observed among +TAM participles, but it is mostly attested for passive and absolutive participles within wider systems, see Chapter 7. These forms, therefore, are outside the scope of the current section.

[34] In Italian, there are also forms in *-nte* traditionally referred to as 'present participles', which demonstrate active orientation, e.g. *un quadro* [***raffigurante*** *la Firenze di Dante*] 'a picture representing Dante's Florence'. I do not, however, consider them in this study, since they can only be derived from few verbs indicating properties or states, they often have idiosyncratic differences in meaning with the original verbs, and they only occur in relative clauses in the bureaucratic register, cf. Maiden & Robustelli (2000: sect. 3.32, 7.23).

5.2.5. Hierarchical tendencies in TAM constraints

In this section, I will have a closer look at the TAM features lost by participial relative clauses due to desententialization, in connection with the hierarchies discussed in Malchukov (2004) and summarized in Section 4.2.3 here. Because of the considerable differences in TAM expression in participles across languages, I do not aim at proposing a full account for the phenomenon of desententialization and its possible degrees. Rather, this section is a collection of observations on the hierarchical tendencies in the expression of TAM meanings in participial relative clauses.

As predicted by Malchukov's hierarchy (see section 4.2.3), evidentiality is a category of the TAM domain whose expression relatively easily becomes unavailable in participial relative clauses. Grammatical evidentiality distinctions can be seen to be lost in most languages where they exist in independent sentences, e.g. in Kayardild (Tangkic; Australia; Evans 1995), Lezgian (Nakh-Daghestanian > Lezgic; Russia; Haspelmath 1993), Maricopa (Cochimi-Yuman > Yuman; United States; Gordon 1980, 1986), and many others. A noteworthy exception in this respect is Matsés (Pano-Tacanan > Panoan; Brazil, Peru)[35], where TAM-coding participant nominalizations commonly used for forming relative clauses referring to the past, distinguish between three tenses (recent past, distant past, and remote past) and two evidentiality values (inferential and experiential), cf. Fleck (2003: 305)[36]. In a way parallel to the distinction observed in main clauses, experiential nominalization implies the encoded event having been witnessed by the speaker, while inferential nominalization is used for events which have not been witnessed, but rather inferred, for more information on this see Section 3.6.2 and, in particular, example (94). The sentence in (135) below illustrates a relative clause introduced by an experiential nominalization, where the act of asking must have occurred in a face-to-face interaction:

(135) Matsés (Pano-Tacanan > Panoan; Brazil, Peru; Fleck 2003: 1018)

në	[*mimbi*	*daëdca-ta*	*ca-boed*]	*tote*
here	2ERG	weave-IMP	say-NMZ.PST.EXP	woven.carrying.strap

[35] Adelaar (2011) provides several examples from Tarma Quechua (Quechua, Peru), where the stative nominalizer *-sha* commonly used to form relative clause predicates, combines with the affirmative evidential marker *-m*. None of the examples, however, represent a relative clause, but rather conditional and temporal constructions. It is not, thus, clear if Tarma Quechua allows for evidential markers in participial relative clauses. Conversely, in Panare (Cariban; Venezuela; Payne & Payne 2013), the form in *-jpë* is claimed to be a past inferential participle, as opposed to the past participle in *-sa'* with no evidential meaning, but this form was not included in the sample, since no clear evidence is available confirming its use in relative clauses.

[36] As shown in Fleck (2003: 319–321) all the nominalizations in Matses capable of functioning as relative clause predicates in the language, include the element *-ed* (or one of its numerous allomorphs), which presumably used to be a generic participant nominalizer. Nevertheless, for multiple morphophonological and morphosyntactic reasons, Fleck claims that this element in the Matses nominalizations should not any longer be considered diachronically segmentable.

que-quin *tote* *mene-quid*
say-while:S/A>A woven.carrying.strap give-HAB
'Saying, "Here! The woven carrying strap that you asked (me) to weave," they [women] give the woven carrying strap [to their brother, boyfriend, or husband].'

The possibility of expressing modal distinctions within the participial form[37] also tends to be lost fairly easily as a result of deranking. Thus, languages with certain temporal and aspectual contrasts but no modality within the participial paradigm include, for instance, Koorete (Afro-Asiatic > North Omotic; Ethiopia; Hayward 1982), or Kolyma Yukaghir (Yukaghir; Russia; Maslova 2003). In languages that do allow the systematic expression of a certain modal meaning (e.g. potentiality or necessity), it usually belongs to the same paradigm as temporal markers, see Section 5.2.3 for the discussion.

If a language does not allow for the standard (finite) way of expressing modality in participial relative clauses, it can resort to some other way, for example, using a periphrastic construction. Tundra Nenets, for instance, does not allow any modal markers to be incorporated into regular participial forms, cf. (136a). However, periphrastic expression of modality is possible. The dependent modal situations are rendered by periphrastic combinations of the purposive converb and the imperfective participle of the semantically light verb *me-* 'to take', see (136b), and compare to a similar meaning conveyed in the main clause, cf. (136c):

(136) Tundra Nenets (Uralic > Samoyedic; Russia, Nikolaeva 2014: 316, 91)
a. [*xada-wənta*] *tem'i*
kill-PTCP.FUT reindeer.1SG
'the reindeer which I will kill'
b. [*xada-wənc'°* *me-na*] *tem'i*
kill-PURP take-PTCP.IPFV reindeer.1SG
'the reindeer which I have to/would/should/must kill'.
c. *pidər°* *ti-m* *xada-bc'u-n°*
you reindeer-ACC kill-NEC-2SG
'(I agree,) you should kill a reindeer.'

Russian participles present a very interesting case with respect to the place of modality in the hierarchy of desententialization. Although they are otherwise highly desententialized and nominalized according to other criteria (e.g. reduced tense paradigm, full adjectival agreement with the modified noun, and lack of verbal agreement with the subject), they allow for the expression of subjunctive mood in a relative clause in the way that corresponds to its expression in independent sentences, namely by the combination of the subjunctive particle *by* and the form bearing a past tense marker, cf. (137):

[37] I discuss primarily deontic (root) modality here, since no indisputable instances of epistemic modality expression were discovered in the sample (see, however, the discussion of Russian below).

(137) Russian (Indo-European > Slavic; Russia; Saj 2011)

a. *Šag-i* *Leny,* [*dnëm* ***po-gas-š-ie*** ***by***
step-NOM.PL Lena-GEN.SG day-INS.SG PFV-fade-PTCP.PST.ACT-NOM.PL SJV
v *šum-e* *ulicy*], ⟨...⟩ *razdava-l-i-s'* *sejčas*
in noise-PREP.SG street-GEN.SG sound-PST-PL-REFL now
bespoščadn-ymi *šlepk-ami*
merciless-INS.PL flap-INS.PL
'Lena's steps, which would have faded in the street noise in the daytime, sounded now as merciless flaps.'

b. *Šag-i* *Leny* *dnëm* ***po-gas-l-i*** ***by***
step-NOM.PL Lena-GEN.SG day-INS.SG PFV-fade-PST-PL SJV
v *šum-e* *ulicy*
in noise-PREP.SG street-GEN.SG
'Lena's steps would have faded in the street noise in the daytime.'

As Saj (2011) shows, in some contexts the overt expression of subjunctive mood in participial relative clauses is optional, but in the situation illustrated above, where the event presented in the main clause as real (Lena's steps sounding as merciless flaps) is opposed to another event, which otherwise could have happened (Leena's steps fading in the street noise), the subjunctive particle cannot be omitted. Such sentences are considered ungrammatical by prescriptive grammarians, but they do nevertheless occur in natural texts.

Within the tense domain, some values of the category can be shown to be more likely lost in participles than others. The temporal meaning that is most likely to become unavailable in participial relative clauses is future. For one thing, future interacts to a large extent with modality, cf. Section 4.3.1 for the discussion. As a result, some forms which can in principle convey future meaning are widely used for expressing potentiality or necessity. But this is clearly not the only factor. Future participles in general appear to be cross-linguistically rare if compared to participles with other temporal properties, cf. Vlakhov (2010: 10–16) for an overview. Languages that have specialized future forms in the finite paradigm sometimes do not distinguish between present and future in the participial paradigm, see the case of Nanai (Tungusic; Russia; personal field notes) discussed in section 5.2.3, Even (Tungusic; Russia; Malchukov 1995), Ingush (Nakh-Daghestanian > Nakh; Russia; Nichols 2011: 243), or Northern Khanty (Uralic > Ugric; Russia; Nikolaeva 1999). In Russian, future participles have a peculiar status with respect to the standard language. There is a morphologically transparent way to form future active perfective participles by adding a present participle suffix *-ušč-/-ašč-* to a perfective verb stem, cf. example (138a), which is parallel to the way the finite perfective future is formed in Russian, cf. (138b):

(138) Russian (Indo-European > Slavic; Russia; found by Google, personal knowledge)

a. *Imenno* *et-o* *mest-o* *dolžn-o* *sta-t'*
exactly this-N.NOM.SG place(N)-NOM.SG must-N.SG become-INF
osnovn-ym *mest-om* *palomničestv-a* *futbol'-n-yx*
main-N.INS.SG place(N)-INS.SG pilgrimage(N)-GEN.SG football-ADJR-GEN.PL

bolel'ščik-ov [***pried-ušč-ix*** *na* *turnir-Ø*]
fan-GEN.PL **come.PFV-PTCP.PRS.ACT-GEN.PL** on tournament(M)-ACC.SG
'It is this place that must become the main place of pilgrimage for the football fans who will come to the tournament'

b. *Bolel'ščik-i* ***pried-ut*** *na* *igr-u*
fan-NOM.PL **come.PFV-PRS.3PL** on game(F)-ACC.SG
'The fans will come to the game.'

These forms are attested in written texts and spontaneous speech, but are, nevertheless, considered ungrammatical in prescriptive grammars. As suggested by corpus data, Russian speakers tend to resort to these forms when the primary relativization strategy employing the relative pronoun *kotoryj* is impossible to process for syntactic reasons. Except in the cases of pied-piping, the relative pronoun has to appear at the left edge of the clause, directly following the modified noun. If, on the other hand, the speaker starts the relative clause with a temporal adverbial, which is not subject to pied-piping, the future participle becomes the only alternative allowing to complete the clause, see example (139) and Kirjanov & Shagal (2011) for further discussion:

(139) Russian (Indo-European > Slavic; Russia; Kirjanov & Shagal 2011: 96)
Togda *ja* *sčita-l* *sebja* *velik-im*
then I.NOM consider-PST.M.SG REFL.ACC great-M.INS.SG
pisatel-em, [*rano* *ili* *pozdno* [OK]***na-piš-ušč-im /***
writer(M)-INS.SG early or late PRF-write-PTCP.PRS.ACT-M.INS.SG
****kotor-yj*** ***na-piš-et*** *genial'n-oe* *proizvedeni-e*]
which-M.NOM.SG PRF-write-PRS.3SG brilliant-N.ACC.SG work(N)-ACC.SG
'Then I considered myself a great writer, who will sooner or later create a brilliant work'

Future participles can demonstrate certain peculiarities within the system also otherwise. For instance, in Section 5.2.3 I have already mentioned the case of Tamil, where future participle in *-um* is the only +TAM form, whereas other temporal meanings are expressed by specialized affixes attached to the –TAM form in *-a*.

If, on the other hand, we think of the most easily retained tense value, it seems that present might be the best candidate. In one of the sample languages, Martuthunira (Pama-Nyungan > Western Pama-Nyungan, Australia; Dench 1995), the only existing participial form in *-nyila* is used in relative clauses with the present meaning or the meaning of simultaneity, while in all other cases regular finite forms are employed as relative clause predicates, cf. examples in (140). In this case, the present tense behaves as the value most suitable for a deranked form if compared to independent verbs.

(140) Martuthunira (Pama-Nyungan > Western Pama-Nyungan, Australia; Dench 1995: 244, 241)
a. *Ngayu* *ngurnu* *murla-a* *wantha-rralha* *ngulangu,* *murtiwala-la*
1SG.NOM that.ACC meat-ACC place-PST there car-LOC

[***karri-nyila-la*** *pal.yarra-la*]
stand-REL.PRS-LOC plain-LOC
'I put that meat there, in the car which is standing on the flat.'

b. *Ngayu* ***yanga-lalha-rru*** *ngurnu* *pawulu-u* [*muyi-i*
1SG.NOM **chase-PST-now** that.ACC child-ACC dog-ACC
thani-lalha-a].
hit-PST-ACC
'I chased that kid who hit the dog.'

Finally, aspect is the category which is most likely to be retained in desententialized participial relative clauses. Among the languages which do not have temporal and modal distinctions in participles but still allow for certain aspectual marking are at least Warihio (Uto-Aztecan > Tarahumaran; Mexico; Félix Armendáriz 2005), and Malayalam (Southern Dravidian; India; Asher & Kumari 1997), where this situation is characteristic for the negative participial form in *-aatta*.

5.2.6. Structural factors influencing TAM expression

As can be seen from the discussion above, participial relative clauses in the languages of the sample generally confirm the existing generalizations regarding desententialization explained in functional terms. At the same time, quite in line with Malchukov's (2004) observations, structural factors can also be relevant in this respect. For instance, in Maba, the past tense marker is widely attested in participial relative clauses, cf. (141a), while the future tense cannot be overtly expressed. This looks similar to certain desententialization effects discussed above, e.g. those observed in the participial systems of Nanai or Russian. However, the unavailability of future meaning in the participial relative clauses in Maba, according to the description provided in Weiss (2009), should clearly not be explained by any semantic constraints. It should rather be attributed to the fact that the respective meaning in independent sentences is conveyed by constructions with clitics, not affixes, cf. (141b):

(141) Maba (Maban; Chad; Weiss 2009: 320, 297)

a. *kàŋ* *máʃĩ-g* [*kùndán* *kèdémí:* *n-ánár-á*]=*gù*
human man-SG yesterday egg PTCP-bring-PST=SG.DEF
t-ár-à
3SG-come-PST
'The man who brought eggs yesterday has come.'

b. *m-ú-g* *kàn* *sû:=gín* *á-ká=tè*
1SG-sister-SG COM market=LOC 1SG-go=FUT
'I will go to the market with my sister.'

Similarly, Russian does not allow for the formation of imperfective future active participles. Future in imperfective contexts is periphrastic in Russian, formed using the auxiliary 'to be' with the future meaning, cf. (142a). Such periphrastic construction is,

consequently, the only potential means for forming imperfective future participles, cf. (142b):

(142) Russian (Indo-European > Slavic; Russia; personal knowledge)
a. *učenik* ***bud-et*** ***čita-t'*** *knig-u*
student(M).NOM.SG **be.FUT-3SG** **read-INF** book(F)-ACC.SG
'the student will be reading a book'
b. ??*učenik* [***bud-ušč-ij*** ***čita-t'***
student(M).NOM.SG **be.FUT-PTCP.PRS.ACT-M.NOM.SG** **read-INF**
knig-u]
book(F)-ACC.SG
'the student who will be reading a book'

These forms, even though occasionally attested in informal texts, are extremely rare and marginal. Theoretically, it is possible that the formation of imperfective future participles is dispreferred for some pragmatic reasons. However, I assume that it is the structure that is primarily responsible for this constraint.

One more example of this kind comes from Mẽbengokre. According to Salanova (2011: 52), the left periphery of matrix clauses in this language is constituted by a focus position, which can contain at most one dislocated phrase, a delimiting particle that indicates tense (future vs. non-future) or mood (realis vs. irrealis), and a position reserved for nominative subjects. None of these positions, however, are available in internally headed relative clauses, compare (143a) and (143b). The restriction affecting the TAM expression is, therefore, formulated in structural terms, and is based on the position of the TAM particles within a clause rather than on their semantics. This view is supported by the fact that very similar meanings can be conveyed in relative clauses by a series of special postverbal markers, mostly directional postpositions, cf. (143c) and (143d):

(143) Mẽbengokre (Nuclear-Macro-Ge > Ge-Kaingang, Brazil; Salanova 2011: 52, 53)
a. kukryt ***nẽ*** *ba* *arỳm* *ku-bĩ*
tapir (FOC) **NFUT** 1.NOM already 3.ACC-kill.V
'I killed *tapir*.'
b. (**kukryt*) **(*nẽ)** (**ije*) [*arỳm* *ije* *bĩn*]
tapir (FOC) **NFUT** 1.ERG already 1.ERG kill.NMZ
'the one I killed'
c. [*kute* *kà* *nhipêx* ***mã***] *jã*
3ERG canoe make.NMZ **to** this
'the canoe he's about to make'
d. [*kute* *kà* *nhipêx* ***'ỳr***] *jã*
3ERG canoe make.NMZ **up.to** this
'the canoe he almost made'

As I have already mentioned in Section 4.2.3 on Malchukov's Generalized Scale Model, structural factors in desententialization commonly go hand in hand with the tendencies reflected in the functional hierarchies. For instance, certain modal meanings

can be unavailable in participial relative clauses for structural reasons, because they are expressed periphrastically or otherwise further away from the verbal stem. This, in turn, can be explained functionally, with reference to the relevance of the meaning in question for the semantics of the verb, cf. Bybee (1985). Consequently, in many languages it can be simply impossible to distinguish between the influence of semantic and pragmatic factors on the one hand, and structural factors on the other hand.

5.3. Expression of negation

This section investigates various ways in which participial relative clauses can differ from the independent clause standard in the domain of negation. Three types of deviations attested in the languages of the sample include the use of non-finite or nominal negation markers (5.3.1), the specialized negative participial forms (5.3.2), as well as the impossibility to express negation in combination with a participle whatsoever (5.3.3).

5.3.1. Non-finite or nominal negation

The first type of deviations concerning negation originates from the fact that the predicate of a participial relative clause either belongs to the class of non-finite forms of the language or is treated as a regular noun or adjective. Among other things, this can be reflected in the use of specialized non-finite or nominal negation with these forms. For instance, while finite forms in Lezgian are negated with the suffix *-č* (144a), participles follow the non-finite pattern, which they share with other non-finite as well as non-indicative forms, cf. (144b) for a synthetic form and (144c) for a periphrastic construction:

(144) Lezgian (Nakh-Daghestanian > Lezgic; Russia; Haspelmath 1993: 127, 133–134)
a. *gu-zwa* / *gu-zwa-č*
give-IPFV / give-IPFV-NEG
'he gives' / 'he does not give'
b. *fi-zwa-j* / ***te-fi-zwa-j***
go-IPFV-PTCP / NEG-go-IPFV-PTCP
'the one that goes' / 'the one that does not go'
c. *Caw=tahar aburu-n* [*kas agaq'* ***t-iji-da-j***]
Caw-tahar 3PL-GEN man reach(PER) NEG-do-FUT-PTCP
[*caw-a awa-j*] *q̃ele ja*.
sky-INESS be.in-PTCP fortress COP
'The Caw-tahar is their fortress in the sky which people do not reach.'

From the formal point of view, non-finite negation of participial forms comes in a variety of options, including particles (Kalmyk *esə*, Muna *pata*), proclitics (Ingush *cy=*), suffixes (Garo *-gija*, Beserman Udmurt *-te*, Wappo *-lah*, Mapudungun *-no*/*-nu*), and periphrastic constructions (Tundra Nenets).

The other option for participial negation is using a marker which the language otherwise employs for negating nouns or adjectives. This situation can be illustrated by an example from Modern Standard Arabic, compare (145a) and (145b) where the marker *ghayr* is used for negating active and passive participles, and (145c) for its use with an adjective:

(145) Modern Standard Arabic (Afro-Asiatic > Semitic; multiple countries; Aleksandr Letuchiy, p.c., Ryding 2005: 649)

a. *nās-un* [***ghayr-u*** *qāri'-īna*]
people-NOM **NEG-NOM.CONSTR** read.PTCP.ACT-PL.GEN
'non-reading people'

b. *ħurūf-un* [***ghayr-u*** *maktūb-at-in*]
letter.PL-NOM **NEG-NOM.CONSTR** write.PTCP.PASS-F-GEN
'unwritten letters'

c. *al-bilād-u* ***ghayr-u*** *l-'islamiyy-at-i*
DEF-country.PL-NOM **NEG-NOM.CONSTR** DEF-Islamic-F-GEN
'the non-Islamic countries'

The Finnish negative participle in *-maton* is also related to the regular suffix of nominal negation *-ton*[38], cf. (146a). Finite clauses, on the other hand, are negated with the negative auxiliary followed by a connegative form, cf. (146b):

(146) Finnish (Uralic > Finnic; Finland; found by Google, personal knowledge)

a. *On-ko kyseessä se* [*kenen-kään* ***näke-mä-tön-Ø***]
be.PRS.3SG-Q issue.SG-INESS this who.GEN-CLT see-PTCP.A-NEG-NOM.SG
[*pöydä-n alta anne-ttu-Ø*] *raha-Ø?*
table.SG-GEN below.ABL give-PTCP.PST.PASS-NOM.SG money-NOM.SG
'Is it about this money not seen by anybody, which was given from under the table?'

b. *Kuka-an* ***ei*** ***näe*** *raha-a*
who.NOM-CLT **NEG.3SG** **see.CNG** money-PTV
'Nobody sees the money.'

Outside of relative clauses the negative suffix *-ton* is used in various instances of nominal negation, for instance, for deriving adjectives with privative meaning from nouns, cf. *asunto-Ø* apartment-NOM.SG – *asunno-ton-Ø* apartment-NEG-NOM.SG 'one without an apartment'[39].

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[38] The negative participle has, however, developed a number of idiosyncratic properties due to which it does not appear reasonable to regard the formant *-maton* as a composite marker in this study.

[39] Privative adpositions and affixes are commonly used in Papunesian languages to negate relative clauses nominalized to a certain extent, e.g. in Ama (Left May, Papua New Guinea; Årsjö 1999), or in Iatmul (Middle Sepik, Papua New Guinea; Jendraschek 2012). In neither of these two languages, however, nominalized relative clauses qualify as participial according to the definition formulated in this study, and, therefore, they will not be discussed further here.

In at least two languages, both aforementioned ways to negate participial relative clauses are attested, and in both cases the distribution of negation strategies seems to correspond to the degree of nominalization of the respective forms. According to Brykina & Aralova (2012), in Beserman Udmurt, the present participle in *-š'* and the non-past participle in *-no* are negated by a regular adjectival negative marker *-tem* ("a derivative suffix with caritive meaning" according to Edygarova 2015: 278), while for negating the past participle in *-m* the specialized participial negative marker *-te* is employed. It is noteworthy that both the present and the non-past participles are commonly used in habitual contexts or for denoting a permanent property of the modified noun, while the past participle usually refers to a completed action preceding the situation expressed in the main clause. The past participles, therefore, appear more verbal in their meaning, so it seems natural that they combine with a less nominal negation than other participial forms.

In Muna, the two non-finite verb forms interchangeably used for direct object relativization differ in the markers they are negated by. The passive participle in *ni-* combines with the non-finite negation marker, cf. (147a), which is also characteristic of the so called reason clauses, cf. (147b), while the relative clauses introduced by the nominalization in *ka-* feature the nominal negator *suano*, which is used for constituent negation and thus attaches to noun phrases, cf. (147c). Unfortunately, since relative clauses introduced by the nominalization in *-ka* are rarely negated at all, the only available examples that illustrate the combination of the nominalization with the negative marker *suano* are of the type provided in (147d), where the nominalization functions as a noun, not as an adnominal modifier. Interestingly, the relative clauses introduced by participles are more verbal than those introduced by nominalizations not only in the choice of the negative marker. In addition, the former allow the use of the preposition *so* as a future marker, thus allowing some kind of temporal distinction, cf. (147e), while with the latter, on the contrary, the future marker *so* cannot occur.

(147) Muna (Austronesian > Celebic; Indonesia; van den Berg 2013: 211–212, 232)

a. *garaa giu* ***pata*** *s<um>aha-no* *maitu miina*
SURPR something NEG legal.PTCP.ACT-PTCP.ACT that not
na-ti-perapi
3SG.IRR-ACC-enjoy
'Something unlawful cannot be enjoyed.'

b. ***pata****-ho* *ka-mai-ha-no* *rampano* *no-saki* *ana-no*
NEG-yet NMZ-come-REAS-his because 3SG.REAL-sick child-his
'The reason he has not come yet is that his child is ill.'

c. ***suano*** *kaawu* *inodi,* *do-bhari*
not just I 1PL.REAL-many
'not just me, there were many of us'

d. ***suano*** *ka-ghosa-no* *pikore*
not NMZ-strong-POSS.LK pikore.bird
'It was not the pikore's strength.'

e. *ae-faraluu* *dahu* [***so*** *me-dhaga-ni-no* *lambu*]
1SG.REAL-need dog **FUT** PTCP.ACT-guard-TR-PTCP.ACT house
'I need a dog that will guard the house.'

5.3.2. Specialized negative participles

The second type comprises languages where the negative meaning in participial relative clauses is conveyed by a separate participial form or a set of forms, the specialized negative participles. The negative participial marker in this case is not diachronically related to any other negative morpheme in the language, or has developed enough idiosyncratic properties to be regarded as a separate unit. The relation between affirmative and negative participial forms in these languages can be of two major types. Firstly, there can be a negative counterpart for each affirmative participle (symmetric system). Secondly, a language can employ a single form for negating all the participles irrespective of their distinctive features, or a limited set of negative participial forms if compared to affirmative (asymmetric system)[40].

Two languages in my sample, Sakha (Turkic; Russia) and Marathi (Indo-European > Indic; India), exhibit symmetric participial systems with several negative participles. The participial system in Sakha, for instance, consists of three affirmative participles with different temporal meanings, and three respective negative forms, as represented in Table 13 below[41]:

Table 13. System of participles in Sakha (Ubrjatova (1982: 227–240)

	Affirmative	Negative
Past	*-bït*	*-bataχ*
Present	*-ar/-ïr*	*-bat*
Future	*-ïaχ*	*-(ï)mïaχ*

The rest of symmetric participial systems consist of only two participial forms, an affirmative and a negative. The three languages of this type are Kambaata (Afro-Asiatic > Highland East Cushitic; Ethiopia), Malayalam (Southern Dravidian; India), and Yimas (Lower Sepik-Ramu > Lower Sepik; Papua New Guinea). None of these systems, however, is truly symmetric with respect to the morphological properties of participial forms and their syntactic behaviour. For instance, in Yimas, the affirmative non-finite form is only used for subject relativization, cf. (148a), while the negative non-finite form can relativize any core participant, cf. (148b):

[40] The only case in my sample where negative contexts show more distinctions in the TAM domain if compared to the affirmative ones is Ma'di (Central Sudanic > Moru-Ma'di; Sudan, Uganda). In this language, non-finite relative forms do not exhibit any overt tense expression in affirmative contexts, and are free with respect to temporal interpretation. These forms, on the other hand, combine with regular negative markers *kɔ̄* and *kɔ̄rɔ̀*, which are employed in non-past and past contexts respectively (Blackings & Fabb 2003: 473), therefore allowing to differentiate between non-past and past relative clauses. The observed situation, however, reflects the properties of the Ma'di negative markers rather than subordinate forms, and thus will not be discussed in detail here.

[41] As it is clear from the table, the markers of negative participles in Sakha differ in the level of their derivational transparency. The future negative marker *-(ï)mïaχ*, which is most transparent, is simply a combination of the regular verbal negative marker and the participial suffix. Despite that, the resulting system can be regarded as symmetric, since no single negative marker can be determined, and every affirmative participle has its own negative counterpart.

(148) Yimas (Lower Sepik-Ramu > Lower Sepik, Papua New Guinea; Foley 1991: 404, 407)

a. *namarawt* [*tamana* ***ti-r-awt***] *na-mal*
person.CL1.SG sickness.CL9.SG feel-NF-M.SG 3SG.S-die
'The person who was always sick died.' (Foley 1991: 404)

b. *wakn* *na-mpu-ŋa-tkam-t* [*namat*
snake.CL5.SG CL5.SG.T-3PL.A-LSG.R-show-PFV person.CL1.PL
tu-kakan-Ø]
kill-NF.NEG-CL5.SG
'They showed me the snake that doesn't kill people.'/
'They showed me the snake that people don't kill.'

In Kambaata, the negative participle formed by the marker *-umb*, shows agreement in gender and case with the nominal head, while affirmative participles do not, and demonstrates the neutralization of the aspectual distinction perfective vs. imperfective, which is present in the paradigm of its affirmative counterparts, compare (149a) and (149b) below[42]:

(149) Kambaata (Afro-Asiatic > Highland East Cushitic; Ethiopia; Treis 2008: 171, 180)

a. [*cíil-at* ***it-tumb-úta***] *inchch-áta*
baby.girl-F.NOM eat-3F.PTCP.NEG-F.ACC food-F.ACC
'the food that the baby girl does not eat'

b. [*bux-íchch-u* ***it-anó***] *bar-í* *móoq-ut*
poor-SG-M.NOM eat-3M.IPFV.PTCP day-M.ACC spoon-F.NOM
ba'-áa'a
disappear-3F.IPFV
'On the day on which a poor man has some food to eat his spoon cannot be found.'

A similar neutralization occurs in Malayalam (Southern Dravidian; India), where the forms with the affirmative participial suffix *-a* can take tense markers, while the forms with the negative participial suffix *-aatta* cannot, cf. (Asher & Kumari 1997: 327).

If we do not take into account the difference between languages that express TAM meanings within participial markers and separately (see Section 5.2.1 on these two options), the situation in Malayalam is, in fact, very close to the situation observed in the languages with asymmetric participial systems. For example, in Telugu (South-Central Dravidian; India), a language fairly closely related to Malayalam, the affirmative paradigm of participles includes the past participle in *-ina*, the future-habitual participle in *-ee*, and the durative participle in *-tunna*. The single negative participle in *-ani* can be used to negate any of the affirmative forms, and its exact temporal meaning is understood from the context, cf. Krishnamurti & Gwynn (1985: 242). A system with three affirmative

[42] Interestingly, the asymmetry in Kambaata is only attested in the participial system. Negation in main clauses does not trigger any aspectual neutralization.

participles and one negative participle is attested in Georgian as well, cf. Hewitt (1995). All the Uralic languages possessing a specialized negative participle also fall into this category, namely Finnish, Meadow Mari, Komi-Zyrian, North Saami, Tundra Nenets, and Northern Khanty.

Matsés (Pano-Tacanan > Panoan; Brazil, Peru) is the only language in my sample that exhibits an asymmetric participial system with more than one negative form. As shown in Section 5.2.5, the participial system in Matsés is extremely elaborate, featuring, apart from three inherently oriented participles, also a number of contextually oriented forms differing in their temporal and evidential characteristics. The significantly restricted set of negative relative clause predicates consists of only three forms, namely the negative habitual S/A nominalizer in *-esa*, the negative habitual P/INS nominalizer in *-temaid*, and the negative perfect P/INS nominalizer in *-acmaid*, cf. Fleck (2003: 307).

As can be seen from the examples above, in case participial relative clauses are subject to certain restrictions in negative contexts (that is, if negative participles are not employed as a universal tool for negating any affirmative participles depending on the context), the meanings that can be conveyed by these forms and their syntactic properties are not random. If the range of possible temporal and aspectual characteristics is reduced, the habitual interpretation is more common than others. For Kambaata, Treis (2008: 172) even states explicitly that the negative participle is used to express "constant, habitual, or repeated not V-ing". In both languages where the range of participants that can be relativized by affirmative participles is wider than the range of participants relativizable by the negative form, the orientation of the latter is absolutive, cf. privative participle in *u-...-el/-il* in Georgian and negative participle in *-li* in Northern Khanty. In the more complex negative participial system attested in Matsés, both factors come into play. As shown above, both S/A and P/INS participial orientation is available for habitual contexts, but in addition there is also a perfect participle specializing in non-subject relativization. The observed distribution can be regarded as another instance of the general interconnection between TAM and participial orientation that will be discussed in more detail in Chapter 7.

Finally, a situation which is in a way intermediate between the symmetric and the asymmetric system is attested in Aguaruna (Jivaroan; Peru). This language possesses two affirmative participial forms, the subject relative form in *-u* and the non-subject relative form in *-mau*, and one negative, formed by the marker *-tfau*. Even though, according to Overall (2007), synchronically the three participial markers should be regarded as separate affixes, diachronically both the non-subject relative form and the negative relative form are clearly derived from the subject relative form in *-u*. As a result, the negative participle in *-tfau* is in the symmetric relation with the subject relative form, while the non-subject relative form does not have a negative counterpart whatsoever. Other languages where participial relative clauses cannot be negated are discussed in the following section.

5.3.3. No participial negation available

The impossibility of negating a participial relative clause is very rarely mentioned explicitly in grammars. The only four languages in my sample for which I was able to find

the respective claim in their descriptions are Imbabura Quechua (Quechuan; Ecuador), Kayardild (Tangkic; Australia), Fula (Atlantic-Congo > North Atlantic, Cameroon), and Nias (Austronesian > Northwest Sumatra-Barrier Islands; Indonesia). If the negative meaning has to be expressed in a relative clause, these languages commonly employ finite relative constructions with standard negation and main clause internal syntax.

A somewhat different situation is, however, attested in Nias. Relative clauses formed by passive participles marked with *ni-* are not negated directly. Instead, a headless relative clause with a *ni-* participle as its predicate occurs inside another relative clause, introduced by a relative marker *si=* regularly used for subject relativization. The *si=* relativizer attaches to the negative marker *löna*, and the resulting structure is as follows:

(150) Nias (Austronesian > Northwest Sumatra-Barrier Islands; Indonesia)
Andrehe'e *nohi* [*si=löna* [***ni-lau*** *nono*
DIST coconut.tree:MUT REL=NEG PTCP.PASS-climb child:MUT
matua]].
male
'That is the coconut tree the boy did not climb. (lit. That is the coconut tree which is not the one climbed by the boy.)' (Brown 2001: 422, my brackets, my gloss PTCP.PASS)

Presumably, the four languages discussed in this section are hardly the only cases where negation markers are not compatible with participial forms. Most probably, many authors simply do not discuss this constraint, like they often do not discuss other "negative" facts about languages, such as the lack of a certain grammatical category. The real scale of this phenomenon, therefore, yet awaits to be investigated.

5.4. Subject agreement

As I explained earlier in Section 4.3.3, in this section I only consider the instances of verbal subject agreement, while the use of possessive markers referring to the subject will be discussed in Chapter 6. As expected based on the relevant implicational hierarchies, almost all of the languages that have subject agreement in independent sentences, do not show any traces of it in participial relative clauses. This is the case, for instance, in the Indo-European languages of the sample, in Koorete (Afro-Asiatic > North Omotic; Ethiopia), Mapudungun (Araucanian; Chile), Quechuan languages, and several others. There are, however, several languages that do exhibit some agreement with the subject, and do not employ possessive markers for that. In what follows, I will provide an overview of such cases.

Some languages employ a different paradigm of person-number markers in participial relative clauses if compared to the paradigm used in independent sentences. For instance, in Krongo (Kadugli-Krongo > Kadugli; Sudan; Reh 1985: 167–168), the set of person-number affixes used in non-finite relative clauses is reserved for expressing subjects in nominalized and other types of dependent clauses, and subjects of hortative and optative

forms. In Aguaruna (Jivaroan; Peru; Overall 2007: 420–421), the subject relative form in *-u* takes the so-called subordinate-clause person marking, which is not used in main clauses. In both cases the set of affixes is also different from the forms employed to indicate possession.

In Modern Standard Arabic, subject agreement is in a way disguised as adjectival agreement. Most adjectives in Modern Standard Arabic agree with the noun they modify in definiteness, gender, case, and number, cf. (151a). The example in (151b) shows an active participle in subject relativization demonstrating the identical agreement pattern. However, when another participant is relativized using the same form (and a resumptive pronoun), the participle only agrees with the modified noun in definiteness and case, while the number and gender values are taken from the subject of the relative clause. This agreement "mismatch" is illustrated by the example of possessor relativization in (151c), where the participle *l-jālis-a* 'sitting' receives definite and accusative marking due to the nominal agreement with the modified noun *l-marʔat-a* 'woman', but at the same time it is masculine and singular due to the verbal agreement with the word *zawj-u=hā* 'her husband', the subject of the participial relative clause:

(151) Modern Standard Arabic (Afro-Asiatic > Semitic; multiple countries; Doron & Reintges: 17, 22)

a. *xilāl-a* ***l-sanat-ayni*** ***l-māḍiy-at-ayni***
during-ACC **DEF-**year**(F)-GEN.DU** **DEF-**last**-F-GEN.DU**
'during the last two years' (Ryding 2005: 243)

b. *bi-**l**-muʃkilat-**ayni*** [***s**-sābiq-**at-ayni***]
with-**DEF**-problem**(F)-GEN.DU** **DEF**-precede-PTCP.ACT.**F-GEN.DU**
'with the two previous problems' (originally Badawi et al. 2004: 103)

c. *qābal-tu* *l-marʔat-a* [*l-**jālis**-a*
meet.PRF-1SG DEF-woman.F.SG-ACC DEF-sit.**PTCP.ACT.M.SG-**ACC
***zawj**-u=hā*]
husband**(M).SG-**NOM=POSS.3F.SG
'I met the woman whose husband is sitting.'

Based on these examples, it is reasonable to assume that the "full" agreement of the participle with the modified noun in (151b) is actually due to the fact that the modified noun is the relativized subject of the dependent clause. The participle, therefore, receives both number and gender values, and definiteness and case values from the same participant, but for different reasons. This kind of double (verbal and nominal) agreement on a single participial form is also attested on negative participles in Kambaata (Afro-Asiatic > Highland East Cushitic; Ethiopia). According to Treis (2008: 171), these forms demonstrate person, gender and number agreement with the subject of the relative clause, and case and gender agreement with the modified noun. Affirmative participles in Kambaata only agree with the relative clause subject, see examples (149a) and (149b) provided in the previous section.

5.5. Nominal agreement with the modified noun

One of the features that a relative clause predicate develops due to being nominalized/ adjectivalized, is the ability to agree with the modified noun with respect to various nominal categories, which, depending on a particular language, may include number, case, gender, noun class and definiteness. The present section describes two major types of nominal agreement between participles and modified nouns that can be identified cross-linguistically. Section 5.5.1 deals with obligatory agreement, whereas Section 5.5.2 discusses the agreement conditional on certain properties of the relative constuction.

5.5.1. Obligatory agreement

Participial predicates of relative clauses can agree with modified nouns in a variety of nominal categories depending on the language. For instance, in Lithuanian, participles used for adnominal modification exhibit agreement in gender, case and number, cf. (152):

(152) Lithuanian (Indo-European > Baltic; Lithuania; Arkadiev 2014: 86)

a. *Mėgėj-ų komand-os, ne-turė-dam-os kur žais-ti,*
amateur-GEN.PL team-NOM.PL NEG-have-CVB-PL.F where play-INF
noriai dalyvav-o [*mūs-ų rengi-a-m-**uose***]
willingly participate-PST.3 we-GEN arrange-PRS-PTCP.PASS-**LOC.PL.M**
turnyr-uose.
tournament(M)-LOC.PL
'Amateur teams, having no places where they could play [basketball], willingly participated in the tournaments we were organizing.'

b. [*Už-si-rakin-dav-us-**iai*** *kambar-y*] ***Edit-ai***
PRV-REFL-lock-HAB-PST.PTCP.ACT-**DAT.SG.F** room-LOC.SG **Edita(F)-DAT.SG**
po to tek-dav-o atkentė-ti.
after.that get-HAB-PST.3 suffer-INF
'Edita, who used to lock herself in the room, would have to suffer afterwards.'

The same agreement pattern is also found in many other Indo-European languages, the only difference being the range of nominal categories available for agreement. In Russian, German and Modern Greek the ending of the participle depends on the gender, case and number of the modified noun, whereas participles in Italian and Marathi (Indo-European > Indic; India) only agree in gender and number. In Albanian, the participle itself is uninflected, and the agreement with the head noun is shown on the prepositive article pertaining to the participial form (Buchholz & Fiedler 1987: 173–175, Rusakov, p.c.).

A subtype of gender agreement is the agreement in noun class (the term traditionally used for languages with rich gender systems that make four or more distinctions, cf. Corbett 1991, 2013, Di Garbo 2014). Among the languages of the sample, agreement in noun class is attested in Fula (Atlantic-Congo > North Atlantic, Cameroon; Arnott 1970), Yimas (Lower Sepik-Ramu > Lower Sepik; Papua New Guinea; Foley 1991), and Wambaya, an example from which is given in (153):

(153) Wambaya (Mirndi > Wambayan, Australia; Nordlinger 1993: 128)
Janji *ng-a* *daguma* [***dawi-j-barli***].
dog:CL1(ACC) 1SG.A-PST hit(NFUT) bite-TH-NMZ.A:CL1(ACC)
'I hit that biting dog' [Given as a translation for 'I hit the dog that bit me']

Finally, in Modern Standard Arabic, definiteness is also a category with respect to which participles agree with the modified nouns, as shown in the examples (151b) and (151c) in the previous section. In addition, the instances of non-subject participial relativization in Modern Standard Arabic can be used as an illustration for the fact that nominal categories of the head noun can be represented in the attributive participle only partially, which can be regarded as partial instead of full nominal agreement, see Section 5.4 for the relevant discussion.

Similarly to the distinction between +TAM and –TAM participial markers, languages differ in whether the agreement of participles with the modified nouns is external to the participial marker or fused with it. In other words, participial markers can be genderless or gendered. In all the cases considered above, the participial marker can in principle be segmented from the agreement morphology (even though the segmentation can be hindered by morphophonological processes, as in Wambaya). Contrarily, three languages in the sample possess portmanteau participial markers which at the same time express a certain gender value, cf. example (154) from Krongo:

(154) Krongo (Kadugli-Krongo > Kadugli; Sudan; Reh 1985: 257)
a. *n-ɔ́llà* *à²àŋ* ***kà-káaw*** [***ŋ-àttàdì-ttí*** *kàníŋ*]
1/2-IPFV.love I **LOC-person(M)** **CONN.M**-PFV.lean-1SG LOC.he
'I like the man that I lean on.'
b. *n-àdéelà* ***tìnkìryá*** [***n-ófù-n-tíní*** *kí-tì*]
N-IPFV.be.good **bed(N)** **CONN.N**-IPFV.rest-TR-3SG LOC-it
'The bed on which he/she rests is good/beautiful.'

In the second language, Sheko, the marker *-ə̀be* (*-àbe*) is used when the modified noun is feminine singular, whereas for all other kinds of modified nouns (masculine singular, feminine or masculine plural) the marker *-ə̀b* (*-àb*) is employed, compare (155b) and (155a). The same opposition is also observed in other domains where gender distinctions are relevant, e.g. in demonstratives and nominalizers, cf. Hellenthal (2010: 136).

(155) Sheko (Afro-Asiatic > North Omotic, Ethiopia; Hellenthal 2010: 350, 344)
a. [*gōnà* *íʃ-ka* *dààn-tə* *há=ày-**ə̀be***] ***bààrǹ-ərа***
yesterday 3F.SG-with together-SS 3M.SG=dance-**REL.F** **maiden(F).DEF-ACC**
ha=see-kì
2SG=see-exist.Q
'Do you see the girl with whom he danced yesterday?'
b. [*sāāy-ǹ-s* *ás-kǹ* *màtk-**àb***] ***də̀d-ǹ-s***
fable-DEF-M 3M.SG-DAT tell.PASS-**REL** **child-DEF-M**
'the boy to whom the story was told'

Apparently, the expression of both participial status and gender in a single marker may in some cases reflect a relatively early stage of its grammaticalization. According to Hellenthal (2010: 344), the origin of the feminine participial marker in Sheko is fairly transparent: its second syllable is related to the word *bây ~ bé* 'mother'[43]. Interestingly, the same element seems even less grammaticalized when used as a nominalizer. In this case, it has the form *-bé* and is opposed to the masculine nominalizer *-bāāb* 'father', cf. (156a) and (156b). The same elements can also function as nouns meaning 'mother, woman' and 'father, man' respectively, cf. (156c) and (156d):

(156) Sheko (Afro-Asiatic > North Omotic; Ethiopia; Hellenthal 2010: 345, 182)
a. *bērn* *t'ár-ǹ-s* *kāts-m̄-**be***
tomorrow injera-DEF-M cook-IRR-**mother**
'the one (f) who will bake injera tomorrow'
b. *tàmār* *ìy-tà* *tág-ḿ-**bààb*** *kì=â*
education house-LOC go-IRR-**father** exist=3M.SG.Q
'Is there someone who will go to school?'
c. *ēkī* ***be-ì-s***
money **mother-F-PL**
'rich women'
d. *ēkī* ***bààb-ù-s***
money **father-M-PL**
'rich men'

As a side observation, I have noticed that agreement patterns in participial relative clauses tend to vary significantly within particular language families and smaller genealogical units. For instance, among Tungusic languages (Russia), Nanai does not have any agreement at all, Uilta only exhibits occasional case agreement in the accusative, whereas Evenki in its standard variety shows full agreement of the participle with the modified noun, but lacks case agreement in the easternmost dialects, cf. Shagal (2016). As for Berber languages (Northern Africa), in the Riffian variety the participle contains no gender-number distinctions, in Tashelhiyt only number agreement exists, while in Touareg both gender and number of the modified noun are reflected in the participle, cf. Kossmann (2007: 440) and further references there. Considerable variation is also attested among Indo-European and Uralic languages. This tendency suggests that nominal agreement of participles is not a very time-stable feature, and it tends to be acquired and lost relatively simply. This issue, however, requires further investigation before any decisive conclusions can be made.

[43] It is not clear from Hellenthal's description whether it is the first syllable (or the first vowel) in the relative morpheme that actually indicates the participial status of the form. Therefore, I follow the analysis proposed in the grammar, and consider it a single marker that has two gender agreement options.

5.5.2. Conditional agreement

Agreement of a relative participle with the modified noun can be conditional on certain factors. For example, in Beserman Udmurt, the regular position of a participle or a participial relative clause is before the modified noun, and when occupying this position, the participle does not exhibit agreement either in case or in number, cf. (157a) and (157b). When, on the other hand, the participial relative clause is for some reasons used postnominally, the agreement in case and number is obligatory, cf. (157c):

(157) Beserman Udmurt (Uralic > Permic; Russia; Brykina & Aralova 2012: 509, 510, 515)

a. *Mon jarat-iš'ko* [*turna-**m***] *turən-**lə̂š'*** *zə̂n-z-e.*
I love-PRS mow-**NMZ** grass-**GEN2** smell-POSS.3-ACC
'I love the smell of mowed grass.'

b. *Andrej lə̂kt-i-z polka dorə̂, kud-a-z*
Andrey come-PRT-3 shelf near.ILL which-INESS/ILL-POSS.3
sə̂l-o [*lə̂ž'-**em**-te so-jen*] *kn'iga-**os**.*
stand-PRS.3PL read-**NMZ**-NEG that-INS book-**PL**
'Andrey came up to the shelf where the books that he had not read were (standing).'

c. *Stud'ent-**jos-lə̂**,* [*lə̂kt-**em-jos-lə̂** dor-a-z*],
student-**PL-DAT** come-**NMZ-PL-DAT** time-INESS/ILL-POSS.3
puk-t-ə̂l-i-z-ə̂ vit'.
put-TR-ITER-PRT-3-PL five
'The students that came on time were given "fives" (A grades).'

The identical rule applies to some other Uralic languages, such as Meadow Mari (Uralic > Mari; Russia) and Komi-Zyrian (Uralic > Permic; Russia), cf. Brykina & Aralova (2012).

A similar situation is observed in Imbabura Quechua. When a participial relative clause appears in its regular prenominal position, it is only the modified noun that takes the case marking, while the case marking on the non-finite relative clause predicate is prohibited, cf. (158a). The language, however, also allows for the relative constructions in which the modifying clause appears to the right of the head, and need not even be contiguous with it, as shown in (158b) with the same meaning. In this situation, the case marking is obligatory on both the modified noun and the participle:

(158) Imbabura Quechua (Quechuan; Ecuador; Cole 1985: 51–52)

a. *juya-ni* [*Juan-wan tushu-shka ka-shka**(*-ta)***] *kwitsa-**ta***
love-1 Juan-with dance-NMZ be-NMZ**(*-ACC)** girl-**ACC**
'I love the girl who had danced with Juan.'

b. *kwitsa-**ta** juya-ni* [*Juan-wan tushu-shka ka-shka-**ta***]
girl-**ACC** love-1 Juan-with dance-NMZ be-NMZ-**ACC**

Based on a set of syntactic tests, Cole (1985: 50–53) shows that the observed difference in case-marking patterns is due to the fact that in (158a) the relative clause and the modified noun form a single constituent, while in (158b) they are rather two separate constituents of the main clause. The more accurate translation of the second sentence would, therefore, be something like 'I love the girl, the one who had danced with Juan'.

Almost the same principle works in Matsés (Pano-Tacanan > Panoan; Brazil, Peru). When the nominalized relative clause and the modified noun occur in non-adjacent positions, they must both carry case marking, cf. (159a)[44]. When, however, they are adjacent, either both of them can be case-marked, cf. (159b), or just whichever of them comes second, cf. (159c) and (159d):

(159) Matsés (Pano-Tacanan > Panoan; Brazil, Peru; Fleck 2003: 1023)

a. *chido-**n*** *cues-o-sh-i* [*umbi* *muaua-boed-**n***]
woman-**ERG** hit-PST-3-1O 1ERG lie.to/about-NMZ.PST.EXP-**ERG**
'The woman that I lied to hit me.'

b. [*umbi* *muaua-boed-**n***] *chido-**n*** *cues-o-sh-i*
1ERG lie.to/about-NMZ.PST.EXP-**ERG** woman-**ERG** hit-PST-3-1O

c. *chido* [*umbi* *muaua-boed-**n***] *cues-o-sh-i*
woman 1ERG lie.to/about-NMZ.PST.EXP-**ERG** hit-PST-3-1O

d. [*umbi* *muaua-boed*] *chido-**n*** *cues-o-sh-i*
1ERG lie.to/about-NMZ.PST.EXP woman-**ERG** hit-PST-3-1O

The relative order of the modified noun and the nominalized clause is not restricted and does not affect these patterns, nor is the status of a noun phrase as "head noun" relevant. The observed freedom of variation may be seen as evidence that the connection between the non-finite relative clause and the modified noun in Matsés is even looser than that in Imbabura Quechua. Fleck (2003: 1025–1026) argues that the nominalized clause and the modified noun in Matsés, in fact, never behave as a single syntactic constituent. Nevertheless, the construction still complies with the functional definition of a relative clause adopted in this study (see Section 2.3.1), since the nominalized clause is indeed interpreted as attributively modifying the noun.

To summarize this section, language-internal conditional agreement in general tends to depend on the position of the participial relative clause with respect to the head, whether it is adjacent to the head noun or not, or whether it precedes or follows the head noun. Whenever the participial relative clause occurs in an uncommon position (postnominal in Uralic languages and non-adjacent in Imbabura Quechua or Matsés), it is more likely to receive agreement marking. This can presumably be regarded as a means to avoid ambiguity which arises when the relation between the relative clause and the modified noun can not be easily inferred from the word order. In this case, the overt agreement marking on the participle unequivocally signals that the participle and the noun share the semantic referent.

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[44] This naturally does not apply to the cases when the relative construction is in the absolutive, since absolutive arguments are zero-marked in Matses.

5.6. Other morphosyntactic signals of desententialization

Apart from the common signs of non-finiteness attested in numerous languages, there also exist certain idiosyncratic ways of marking desententialization characteristic of particular languages. For instance, in Nivkh, the most obvious manifestation of the relative clause dependent status is the fact that the predicate of a relative clause obligatorily occupying the final position forms a dependent-head complex with the modified noun. A complex in Nivkh is a "unit of synthesized dependent and head" (Mattissen 2003: 33), within which various morphophonemic processes signal syntactic relations. For instance, although the basic form of the noun *təf* 'house' begins with a voiceless plosive /t/, it changes into /d/ when preceded by a relative clause, cf. (160):

(160) Nivkh (Nivkh; Russia; Nedjalkov, Otaina 2013: 276)
ətək [*ɻ'am* ***lu***]=*dəf-toχ* *vi-ḍ*
father shaman sing.PTCP=house-DAT go-IND
'Father went into the house where the shaman sang.'

It is assumed that this alternation occurs due to the weak final nasal, which used to attach to participial verb forms, but was lost in the Amur dialect of Nivkh (Mattissen 2003: 51). Therefore, the verb heading a Nivkh relative clause synchronically has no segmental markers of its attributive function, but only demonstrates it by establishing a tight connection with the noun it modifies.

A somewhat similar situation is observed in the Dargwa variety spoken in the village of Tanti. The attributive verb forms in Tanti Dargwa may be either marked with a specialized attributive suffix *-se* or appear without it. The resulting forms are traditionally referred to as the *long form* of the participle and the *short form*, illustrated by (161a) and (161b) respectively. The attributive suffix *-se* is in principle able to combine with different hosts including adjectives, certain kinds of advervials and possessors (Lander 2014: 3–4). However, especially often it attaches to relative clause predicates, thus providing a good reason to be regarded as a regular participial marker. The short forms, on the other hand, segmentally coincide with the verb forms heading the corresponding independent clauses as shown in (161c):

(161) Tanti Dargwa (Nakh-Daghestanian > Dargwa; Russia; Sumbatova & Lander 2014: 215)
a. [*murad-li* ***íx-ub-se***] *q:arq:a*
Murad-ERG throw.PFV-PRET-ATTR stone
'the stone that Murad threw'
b. [*murad-li* ***ix-úb***] *q:arq:a*
Murad-ERG throw.PFV-PRET stone
'the stone that Murad threw'
c. *murad-li* *q:arq:a* ***íx-ub***
Murad-ERG stone throw.PFV-PRET
'Murad threw a stone'.

Nevertheless, the short forms appear to have a distinct way of signalling syntactic relations, namely the stress shift from the stem to the inflection, compare (161b) and (161c) above. This suprasegmental effect, as Lander (2014) suggests, is a sign of incorporation of the short participial form into the modified noun, which is further manifested syntactically in several restrictions imposed on its use[45].

5.7. Summary and conclusions

In this Chapter, I have discussed the deviations from the main clause standard that participial relative clauses exhibit in the morphosyntactic domain. I have shown that their desententialization is commonly manifested in the peculiarities in TAM marking, such as restrictions on the expession of certain TAM values by separate affixes (–TAM participles), or within a paradigm (+TAM participles). Many participles differ from independent sentences in the way how they express negation, or in the fact that negation is prohibited in participial relative clauses altogether. Verbal subject agreement has been shown to be among the first signs of desententialization, although some languages allow for this type of agreement, at least to a limited extent. In many languages, participles acquire nominal agreement, which can be regarded as a manifestation of the word class change (verb > adjective). Nominal agreement, however, is conditional on certain features of the structure, among which word order is especially common. Finally, some languages exhibit their own idiosyncratic ways of signalling the connection of participles with the modified noun. These ways may involve the development of a polysynthetic complex consisting of the participle and the modified noun. In general, the observed deviations are extremely diverse, and different signals may be espeially relevant for individual languages.

[45] For another illustration of how stress can be employed for signalling the participial status see example (35) from Kambaata.

6. Participant expression in participial relative clauses

6.1. Introduction

As shown in Chapter 4, quite often the desententialization/nominalization of non-finite dependent clauses can be manifested in the non-standard marking of certain participants, or in the restrictions on their use. In one case in my sample, the deviation from the independent clause standard even affects not the marking of a single participant, but rather the alignment of the dependent clause in general. According to Salanova (2011), in Mẽbengokre, main clauses demonstrate accusative alignment, cf. (162a), while in non-finite relative clauses the alignment is ergative, cf. (162b):

(162) Mẽbengokre (Nuclear-Macro-Ge > Ge-Kaingang, Brazil; Salanova 2011: 53–54)
a. *ba* *hadju* *kate*
1NOM radio break.V
'I broke the radio.'
b. [*ije* *hadju* *ka'êk*]
1ERG radio break.NMZ
'the radio that I broke'

However, in all the other cases considered in this study, the changes in encoding concern separate participants of a participial relative clause. In this chapter, I discuss the ways how these participants can be treated, one by one. In Section 6.2, I present all the deviations in the expression of subjects (S/A) in participial relative clauses. Section 6.3 provides the same kind of information regarding direct objects (P). All the non-core participants that can receive special marking in non-finite relative clauses are covered in Section 6.4. In Section 6.5, I summarize the observed tendencies and suggest certain explanations concerning their motivation.

6.2. Subject encoding

Since participial relative clauses commonly preserve full clausal structure, in many languages they allow for regular subject expression. For instance, this is the case in all the Dravidian and Nakh-Daghestanian languages in my sample, cf. example (163) from Ingush:

(163) Ingush (Nakh-Daghestanian > Nakh; Russia; Nichols 2011: 354, 587)
a. ***Muusaaz*** *sy* *axcha* *hwa-dalar*
Musa.ERG 1SG.GEN money DX-D.give.WPST
'Musa returned my money.'

b. [***Muusaaz*** *suoga* *hwa-danna*] *axcha*
Musa.ERG 1SG.ALL DX-D.give.PTCP.PST money
'the money Musa loaned me'

However, in many cases, languages do demonstrate differences in subject encoding between independent sentences and non-finite relative clauses. In the following sections, I discuss the types of deviation from the independent clause standard in subject encoding attested among the languages of the sample.

6.2.1. Subject as a possessor

The most common deviation in subject expression in participial relative clauses is encoding the subject as a possessor, which is available in 32 languages and with 106 participial forms in my sample. The possessive marking can appear in a variety of forms. For instance, in Kharia, the subject of a non-finite relative clause simply receives genitive marking, cf. (164). In Luiseño, the nominalized dependent predicate features a possessive marker referring to the agent, cf. (165). In Kolyma Yukaghir, the subject is expressed by the possessive marking on the modified noun outside the relative clause, cf. (166). Finally, the combination of the last two strategies is attested in Tundra Nenets, where the possessive marking can optionally be present both on the relative clause predicate and the head noun, cf. (167):

(164) Kharia (Austro-Asiatic > Munda; India; Peterson 2011: 413)
[***iŋ=aʔ*** *yo~yo*] *lebu*
1SG=GEN see~PTCP person
'the person I saw/see/will see'

(165) Luiseño (California Uto-Aztecan; United States; Davis 1973: 236) as cited by Shopen (vol. 2: 253)
Nawítmal [*ʔéxŋi* ***ʔu****-qáni-pi*] *pilék* *yawáywis*
girl tomorrow **your**-meet-FUT/REL very pretty
'The girl you're going to meet tomorrow is very pretty.'

(166) Kolyma Yukaghir (Yukaghir; Russia; Maslova 2003: 421)
[*odu-pe* *modo-l*] *jalhil-****pe-gi*** *čomōd'e* *jalhil* *ō-l'el*
Yukaghir-PL live-AN lake-**PL-POSS** big.ATTR.ACT lake COP-INFR(3SG)
'The lake where the Yukaghirs lived was a large lake.'

(167) Tundra Nenets (Uralic > Samoyedic; Russia; Nikolaeva 2014: 315)
[*wolˀtampə-****wemtˀ***] *xoba-****mtˀ***
dislike-**PTCP.PFV.ACC.POSS.2SG** skin-**ACC.POSS.2SG**
'the skin (ACC) that you disliked'

Different strategies of subordinate subject encoding can be attested within a single language as well. In Kolyma Yukaghir, this distinction is one of the differences between so-called attributive relative clauses and nominal relative clauses, cf. (Maslova 2003: 329). In attributive relative clauses, which represent the primary relativization strategy in the

language, the A/S participant is encoded as the possessor of the modified noun. In nominal relative clauses, the A/S participant is encoded as the possessor of the nominal predicate. These two situations, however, are, in a way, two instances of one rule: the A/S participant is marked as the possessor of the noun heading the whole construction. If the predicate of a relative clause is nominal in its nature, it is treated as a possessee itself, while if it is adjectival, the modified noun is regarded as the head noun of the whole construction instead.

As Pakendorf (2012) shows based on the data from the languages of North Asia, even languages which at the first glance might seem very similar with respect to their relative clause structure, in fact can demonstrate considerable divergence, in particular regarding the types of possessive marking they exhibit in relative constructions. The differences can be the result of structural analogy of relative clauses with other types of constructions in the respective languages, such as complement clauses or possessive constructions. However, encoding of possession is relevant in all such cases, so I consider them altogether in this study.

In addition, in a number of languages it is not possible to determine whether the subject of a non-finite relative clause should be regarded as a possessor or not, since in some of them possession is expressed through mere juxtaposition. For example, in Kokama-Kokamilla, the agent in a clause relativizing a direct object, cf. (168a), does not receive any special marking and appears in exactly the same form as in an independent sentence, cf. (168b). However, the form in *-n*, the predicate of the relative clause, behaves as noun in many respects, and a sequence of two nouns (or a pronoun and a noun) is likely to be interpreted as [Npossessor Npossessed], cf. (168c):

(168) Kokama-Kokamilla (Tupian > Tupí-Guaraní, Peru; Vallejos Yopán 2010: 590, 469, 275)

a. *tsa* *mɨmɨra* [***yawara*** *karuta-n*] *yapana=uy*
1SG.F woman.son **dog** bite-NMZ.S/P run=PST1
'My son that the dog bit escaped.'

b. ***yawara*** *mui* *karuta-ari*
dog snake bite-PROG
'The dog is bitting the snake.'

c. *rikua* ***tapira*** ***rimariru*** *iriw=uy*
reason **tapir** **grandson** return=PST1
'And that's why the **tapir's grandson** returned.'

As a result, it is not possible to identify whether the agent in the participial relative clause in Kokama-Kokamilla is a possessor of the nominalized verb form, or a regular subject. Both nominative arguments and possessors are also zero-marked in Cofán (Cofán; Colombia, Ecuador; Fischer & van Lier 2011: 223), which neutralizes the difference between the most typical verbal and nominal subject expression. This issue can appear to be relevant for some other languages as well.

Quite naturally, if a language employs possessive marking to express the subject of a participial relative clause, it may be able to use reflexive possessive marking for the relative clause subject coreferential with the subject of the main clause. Mal'čukov (2008:

216–217) reports this type of expression for Tungusic languages (Even, Nanai, Evenki), cf. examples in (169) from Nanai, where the non-coreferential subject requires the 3rd person possessive marker *-ñi* on the participle, while the coreferential subject is represented by the reflexive possessive marker *-bi*:

(169) Nanai (Tungusic; Russia; personal field notes)
a. *mi* *daŋsa-sal-ba* [*ama* *aŋgo-xa-**ñi***] *taaxy-du*
1SG book-PL-ACC father make-PTCP.PST-**POSS.3SG** shelf-DAT
nee-kte-xem-bi
put-PLR-PTCP.PST-POSS.1SG
I put books on the shelf that my father had made.'
b. *Polokto* [*čimi* *waa-xam-**bi***] *sogdata-wa* *arčokam-ba*
Polokto morning kill-PTCP.PST-**POSS.REFL.SG** fish-ACC girl-ACC
sya-wan-ki-ñi
eat-CAUS-PTCP.PST-POSS.3SG
'Polokto fed the girl with the fish that he caught in the morning.'

Dayley (1989: 360–362) provides similar examples of direct object relativization in Tümpisa Shoshone (Uto-Aztecan > Numic; United States), where the subject of the relative clause is expressed as a regular possessor if it is not coreferential with the subject of the main clause, but a reflexive possessive pronoun is used if the subjects of the two clauses are coreferential. Unfortunately, it is hardly possible to assess how widespread this phenomenon is, since the topic is very rarely discussed in language descriptions.

One more remark is in order here. Some languages in which the subject of a participial relative clause is regularly encoded as a possessor exhibit accusative subject marking in non-finite complement clauses featuring the same nominalized forms, cf. examples (170a) and (170b) from Kalmyk, where the form in *-sən* occurs with a genitive subject in a relative clause and with an accusative subject in a complement clause:

(170) Kalmyk (Mongolic; Russia; personal field notes, Serdobolskaya 2008: 597)
a. [***čini*** *uu-čk-sən*] *cä* *jir* *sän* *bilä*
2SG.GEN drink-COMPL-PTCP.PST tea very good be.REM
'The tea that you drank up was very good.'
b. [***čamagə*** *cä* *uu-čk-s-i-n^{j}*] *med-sən*
2SG.ACC tea drink-COMPL-PTCP.PST-ACC-POSS.3 know-PTCP.PST
uga-v
NEG.COP-1SG
'I did not know that you had drunk up the tea.'

The accusative subject marking in such contexts is commonly explained by the raising of the dependent clause subject, cf. Serdobolskaya (2009), and since the phenomenon of raising is not relevant for relativization, in participial relative clauses accusative subjects are almost never attested. Probably the closest to accusative subject encoding can be found in Wappo, where the subject of a non-finite relative clause does not receive any marking and therefore should, according to Thompson et al. (2006: 117), be regarded as an

accusative, compare the form of the 1st person singular subject in the relative clause and the main clause below:

(171) Wappo (Yuki-Wappo > Wappo; United States; Thompson et al. 2006: 117)
[***i*** *k'ew* *naw-ta*] *(ce)* ***ah*** *hak'-še?*
1SG man see-PST:DEP DEM **1SG:NOM** like-DUR
'I like the man I saw.'

This example is, however, the only one attested in my sample, and it does not feature any overt accusative marking, so it is possible to conclude that accusative is definitely not among the prominent strategies of subject encoding in participial relative clauses.

6.2.2. Subject as a non-core participant

The subject of a participial relative clause can also be encoded as a certain non-core participant, for instance, as an NP in an oblique case, or as an adpositional phrase. The two options are illustrated below by an example from West Greenlandic with an ablative subject, cf. (172), and an example from Hungarian, where the agent is introduced by the postposition *által*, cf. (173):

(172) West Greenlandic (Eskimo-Aleut > Eskimo; Greenland; Fortescue 1984: 53)
nanoq [***Piita-mit*** *toqu-taq-Ø*]
bear.ABS Peter-ABL kill-PTCP.PASS-ABS
'the bear killed by Peter'

(173) Hungarian (Uralic > Ugric; Hungary; Kenesei et al. 1998: 46)
az [***Anna*** ***által*** *tegnap* *olvas-ott*] *könyv*
DEF Anna by yesterday read-PTCP.PST book
'the book read by Anna yesterday'

This type of subject expression is commonly the only possibility for inherently oriented passive or absolutive participles, in particular in Indo-European languages. Among the Indo-European languages of the sample, Russian employs instrumental case to express the agent in a participial relative clause, while Albanian, German, Modern Greek and Italian make use of prepositions. Other forms employing this uniform strategy are the Kalmyk passive participle in *-ata* (instrumental agent, Krapivina 2009: 520), the Kamaiurá passive participle in *-ipyt* (dative agent, Seki 2000: 179), the Panare absolutive participle in *-sa'* (dative agent, Payne & Payne 2013), and the Tarma Quechua absolutive participle *-sha* (ablative agent, Adelaar 2011).

Interestingly, almost all of these languages possess a participle-based passive construction used in independent sentences, which employs the same agent encoding, like English *This book is* ***written by*** *my grandfather*. Apart from the Indo-European languages, like German or Italian, which are commonly cited as an example of this phenomenon, cf. Haspelmath (1990) or Siewierska (1984: 126), such constructions are also attested at least in Kalmyk (Krapivina 2009: 518–520) and Panare, cf. (174):

(174) Panare (Cariban; Venezuela; Payne & Payne 2013: 322, 161)

a. *Moma tityasa wainki'* [*ch-achukë-sa'* ***ta'nimën*** ***úya***
EXIST one anteater TR-squeeze.out-PTCP.PST vehicle DAT
chima ta].
road in
'There was an anteater squashed (killed) by vehicle(s) on the road.'

b. *Y-an-sa'* *mën* *mankowa* ***ana-úya***.
3-get-PTCP.PST SPEC poison 1EX-DAT
'The poison was gotten by us.'

In the languages employing contextually oriented participles, the subject of a participial relative clause also can sometimes be encoded as a non-core participant, consider examples of an instrumental agent in Komi-Zyrian, cf. (175), and a locative agent in Northern Khanty, cf. (176):

(175) Komi-Zyrian (Uralic > Permic; Russia; Brykina & Aralova 2012: 504)
[*Menam* ***pəč'-lən*** *vur-əm*] *dərəm* *zev* *bur*
I.GEN1 grandmother-INS sew-NMZ shirt very good
'The shirt that my grandmother sewed is very good.'

(176) Northern Khanty (Uralic > Ugric; Russia; Nikolaeva 1999: 76)
[***loŋkər-na*** *xir-ə-m*] *o:ŋxi* *xośa* *muwle:r* *u:-l*
mouse-LOC dig-EP-PTCP.PST hole at snake be-NPST.3SG
'In the hole dug by the mouse lives a snake.'

However, in these cases, the respective expression is never the only possible way to express the subject of this particular participle, but it rather alternates with some other options. The rules regulating the variation are discussed in the following section.

6.2.3. Language-internal variation in subject marking

As mentioned in the previous section, some languages employ more than one strategy for expressing the subject of a single participial form. In some cases, the rules regulating the choice are not fully described in the grammar, or the available options exist in free variation. For example, there is hardly any data on the distribution of possessive and ablative subjects in participial relative clauses in West Greenlandic, or possessive and locative subjects in Northern Khanty, and several ways to express the subject of a non-finite relative clause in Georgian seem to be used interchangeably with very few restrictions, according to Hewitt (1995: 539). Nevertheless, in some languages, the variation does follow some fairly strict principles.

In Muna (Austronesian > Celebic; Indonesia), the encoding of the agent in the constructions with direct object relativization depends on whether the relative clause predicate has any other dependents or not. If the agent is the only participant overtly expressed within the relative clause, it is encoded as a possessor, cf. (177a). If, however,

there is an indirect object marker on the relative clause predicate, the possessive suffix is interpreted as referring to the indirect object, and therefore the agent can only be expressed by means of a prepositional phrase with the locative marker *ne*, cf. (177b), which is also used for animate recipients, cf. (177c), and sources, cf. (177d):

(177) Muna (Austronesian > Celebic; Indonesia; van den Berg 2013: 235, 139–140)
a. *sura* [*ka-pakatu-**ku***]
letter NMZ-send-my
'the letter that I sent'
b. *sura* [*ka-pakatu-ghoo-ku **ne** **ina-ku***]
letter NMZ-send-IO-my LOC mother-my
'the letter that was sent to me by my mother'
c. *no-bisara-mo* ***ne*** ***robhine-no***
3SG.REAL-speak-PFV LOC wife-his
'He said to his wife.'
d. *a-fetingke-e* ***ne*** ***Ali***
1SG.REAL-hear-it LOC Ali
'I heard it from Ali.'

In Kalmyk, the choice of the way to express the subject in a participial relative clause is determined by the relativization strategy employed. If the relativized participant is not in any way represented in the relative clause, the subject receives genitive marking, while the subject in the relative clause featuring a resumptive element *-n^{j}* appears in the nominative. The rule is illustrated in (178) by two instances of the postpositional phrase relativization, the only position of the Accessibility Hierarchy where both strategies are available in Kalmyk:

(178) Kalmyk (Mongolic; Russia; personal field notes)
a. *kuuxən^{j}-də* [***miis-in*** *suu-xə*] *stul* *av-ad* *irə-Ø*
kitchen-DAT cat-GEN sit-PTCP.FUT chair take-CVB.ANT come-IMP
b. *kuuxən^{j}-də* [*deer-n^{j}* ***mis*** *suu-xə*] *stul* *av-ad*
kitchen-DAT surface-POSS.3 cat sit-PTCP.FUT chair take-CVB.ANT
irə-Ø
come-IMP
'Bring the chair on which the cat will be sitting to the kitchen.'

While each of the aforementioned two principles is only attested once in my sample, there is another tendency in subject marking variation, which seems relevant for a slightly wider range of typologically distinct languages. The choice of strategy for subject encoding can depend on the position of the subject in question on the Animacy Hierarchy (Silverstein 1976) presented as follows:

1st person > *2nd person* > *3rd person* > *proper names* > *humans* > *non-humans animates* > *inanimates*

For instance, in Meadow Mari, the subject of contextually oriented participles can be expressed by a possessive affix on the head noun, or as a genitive, nominative or instrumental participant. The range of possibilities is different for personal pronouns, other pronouns, proper names, NPs denoting humans, NPs denoting other animate participants, and NPs denoting inanimate participants, as represented in Table 14 from Brykina & Aralova (2012: 488).

Table 14. Subject encoding in participial relative clauses in Meadow Mari

	Personal pronoun	Other pronoun	Proper name	NP denoting a human	NP denoting an animate participant	NP denoting an inanimate participant
Possessive affix on the head noun	+	–	–	–	–	–
Genitive	+	+	+	+	+	+
Nominative	–	–	–	no data	+	+
Instrumental (postposition)	–	–	–	–	–	+

Among the Uralic languages, a very similar situation is attested in Komi-Zyrian, with a slightly wider range of options available for each type of participant, cf. Brykina & Aralova (2012: 503), and in the Beserman Udmurt relative clauses formed by *-m* participles, cf. Brykina & Aralova (2012: 515). In participial relative clauses in Kayardild (Tangkic; Australia), pronominal subjects are expressed as possessors, NPs denoting humans receive ablative marking, and other NPs appear in either consequential or origin case (Evans 1995: 470).

Other languages demonstrate a simpler version of this system. For instance, in Armenian, the same type of variation is only twofold: subject expressed by nouns receive dative marking, while pronouns appear in genitive or in the form of 1st and 2nd person possessive markers (Dum-Tragut 2009: 209). In Warihio (Uto-Aztecan > Tarahumaran; Mexico), pronominal subjects of participial relative clauses are expressed by a special set of pronouns which are otherwise used for encoding none-core participants of independent clauses and possessors, while nominal subjects appear in the same form as in independent clauses (Félix Armendáriz 2005: 93).

On the whole, the tendency presented above can be summarized in the following rule: If a language demonstrates variation with respect to subject expression in participial relative clauses, subjects occupying higher positions on the Animacy Hierarchy are more likely to be expressed as possessors, while subjects occupying lower positions on the

Animacy Hierarchy tend to be expressed either as non-core participants, or in the same way as in independent sentences.

6.2.4. Subject expression unavailable

In some languages which allow for non-subject participial relativization, the agent of the situation denoted by the participle can not be expressed at all. This constraint, however, does not seem to be related to the desententialization of the dependent clause. In almost all the cases attested in my sample, the complete or partial restriction on agent encoding is characteristic of inherently oriented passive participles (Finnish past and non-past passive participles in *-tu* and *-tava*, Irish participle in *-tha*/*-the*, Beng participle in *-lɛ*), or participles strongly preferring passive/absolutive orientation (resultative participle *-s* in Hinuq). For all this forms, the restriction is more likely to be conditioned by the passive meaning, and for all except for the Finnish *-tava* participle also by the resultative meaning, which both commonly induce agent demotion in the clause (see Section 3.3.3 on passive participles).

6.3. Direct object encoding

If compared to subjects of non-finite relative clauses, direct objects much more rarely demonstrate peculiarities in their encoding. In my sample, 204 of the participial forms and 92 languages allow for the direct object expression identical to the direct object expression in independent sentences. Nevertheless, certain deviations can be identified, and I will discuss them in the following sections. The expression of direct objects as possessors and non-core participants is considered in Sections 6.3.1 and 6.3.2 respectively. Section 6.3.3 is devoted to changes in differential object marking in partipial relative clauses if compared to their independent counterparts.

6.3.1. Direct object as a possessor

Even though for the direct objects of participial relative clauses it is much less common than for subjects to be expressed as possessors, it is still the most frequent non-standard way of their encoding. An example in (179) with the direct object in the genitive case comes from Georgian:

(179) Georgian (Kartvelian; Georgia; Hewitt 1995: 539)
[***a+m*** ***šarvl-is*** *še-m-k'er-v-el-i*] *kal-i*
these **trousers-GEN** PREV-PTCP.PRS-sew-TS-PTCP.PRS-AGR woman-NOM
'the woman who sewed these trousers'

In Wan, the attributive nominalization in *-ŋ* expresses the agent in the relative clause as an inalienable possessor, cf. (180a). However, in case the nominalization is associated with two arguments (one corresponding to the verb's object and the other to its subject), the subject, an external argument, is realized as an alienable possessor, while the inalienable possessor position is taken up by the direct object, cf. (180b):

(180) Wan (Eastern Mande; Côte d'Ivoire; Nikitina 2009: 25–26)
a. [***à*** *zò-ŋ*] *gbɛ̀*
3SG come-NMZ.ATTR manner
'the manner of his arrival'
b. [*àà* ***pɔ̄*** *lɔ́-ŋ*] *gbɛ̀*
3SG.ALN **thing** eat-NMZ.ATTR manner
'the manner of his eating'

In the same way as agents, direct objects can also be expressed by possessive suffixes. In Japhug rGyalrong, the participle in *ku-* relativizing the A participant takes an obligatory possessive prefix representing the P if no overt NP corresponding to the P is present, and when no other prefix is added to the participle, cf. (181):

(181) Japhug rGyalrong (Sino-Tibetan > rGyalrongic; China; Jacques 2016: 7)
[***u***-*ku*-*sat*]
POSS.3SG-NMZ.S/A-kill
'the one who kills him'

According to Abraham (1985: 131), in another Sino-Tibetan language, Apatani, the P participant of a nominalized relative clause receives the genitive marker in addition to the accusative marker that it has to take as a direct object. Compare the direct objects in the main and dependent clauses in (182):

(182) Apatani (Sino-Tibetan > Tani; India; Abraham 1985: 131)
ṅo [***si*** ***mi*** ***ka*** *paṅibo*] *myu* *mi* *kapato*
1SG **cattle** **ACC** **GEN** cut.NMZ man ACC see.PST
'I saw the man who killed the cattle.' (Abraham 1985: 131)

This example is, however, fairly problematic, since double case marking does not seem to be attested in any other constructions in the language. Sun (2003: 465) suggests that the genitive marking in this case belongs not to the P participant, but rather to the A participant (*myu* 'man'), which is deleted from the relative clause to become the modified noun, cf. (183a). The genitive marker is exactly the encoding that the A participant receives in Apatani when the P participant is relativized with the same nominalized form in *-ṅi(bo)*[46], cf (183b):

[46] According to Abraham (1985: 131), *-bo* is added to the nominalized embedded verb "when the range of reference is restricted (i.e. when a noun is specified).

(183) Apatani (Sino-Tibetan > Tani; India; Abraham 1985: 131, glosses by Sun 2003: 465)

a. *ṅo* [*sɨ -mi* ***Ø-ka*** *panibo*] *myu-mi* *kapato*
1SG cattle -OBJ **Ø-GEN** kill.NMZ.A person-OBJ see.PFV
'I saw the person who killed the cattle.'

b. [***kago-ka*** *tunɨ*] *myu*
Kago-GEN kick.NMZ man
'the man whom Kago kicked'

The available data on the subordination in Apatani is, unfortunately, too scarce to provide any cogent arguments in favour of any of the two analyses, so I will not draw any conclusions on this matter here.

6.3.2. Direct object as a non-core participant

The only clear example in my sample where the direct object in a participial relative clause is expressed as a non-core participant is the Australian language Garrwa, which employs dative in this context, cf. (184):

(184) Garrwa (Garrwan, Australia; Furby & Furby 1977: 94, glosses and transcription mostly according to Mushin 2012: 202)

nayinda *juka* *ngaki* [*kudukudu-nyi* *kaku-nyi* ***wadamba-warr***]
this.NOM boy.NOM I.POSS.NOM many-DAT fish-DAT feed-CHAR.NOM
'This is my boy who eats many fish.'

Interestingly, not just in Garrwa (Mushin 2012: 201), but also in Wambaya (Nordlinger 1993: 128), another Australian language, agentive nominalizations take a dative dependent expressing what would be the direct object in a regular verbal clause. However, in Wambaya this is only possible when the nominalization functions as a main clause predicate, and in the descriptions of Garrwa there is just a couple of examples of this construction with no detailed clarification. It should be noted though, that this pattern can be regarded as a part of the broader phenomenon of encoding core participants by dative case in subordinate clauses in Australia. According to Nordlinger (2002: 5), Warlpiri (Pama-Nyungan) encodes the subject of the subordinate clause by dative instead of the ergative, and Jiwarli (Pama-Nyungan) employs dative instead of absolutive for expressing the object of the non-finite dependent predicate. Although the data on the matter is fairly limited, there clearly is a tendency for Australian non-finite predicates to take dative dependents expressing core arguments of the clause, cf. also Dench & Evans (1988), and Dench (2009) for Nyamal. This might appear to be relevant to a larger number of participial relative clauses than included in the current sample.

6.3.3. Changes in differential object marking

In the languages that demonstrate differential object marking in independent clauses, the deviation in the direct object expression in participial relative clauses can be manifested not only in the change of encoding itself, but also in the change of rules regulating the choice of marking strategy. For instance, in the Kolyma Yukaghir finite clauses, the 1st and 2nd person direct objects are always encoded as accusatives or instrumentals, while for the 3rd person direct objects this marking is only employed in case the A participant is a 3rd person as well. In all the other cases, namely if the A participant of a finite clause is a 1st or 2nd person, the 3rd person direct object appears in the unmarked nominative form. In non-finite relative clauses, the distribution of possible marking strategies is the same, except for the fact that the situation when both A and P 3rd person participants are unmarked is also available. According to Maslova (2003: 331−336), in this case, it is not the person of the A participant that regulates the differential object marking, but it rather correlates with the relative prominence of the core participants outside the given clause, i.e., in some higher-level text unit. The P participant in such contexts only receives accusative marking if it is a more or equally prominent entity on the episode and text level if compared to the A participant, cf. (185a). If, on the other hand, the A participant is more prominent (or "global", in Maslova's terminology) than the P participant, the latter appears in the unmarked form, cf. (185b):

(185) Kolyma Yukaghir (Yukaghir; Russia; Maslova 2003: 336, 334)
a. [***tude-gele*** *joq-to-l*] *ani-pe* *čobul* *pugedend'e-ŋin*
he-ACC arrive-CAUS-ANOM fish-PL sea king-DAT
mol-l'el-ŋi
say-INFR-3PL.INTR
'The fishes that had brought him said to the sea king: <…>'
b. *ediŋ* [*met* ***marqil'*** *leg-u-l*] *alme* *juө-k*!
this my girl eat-EP-ANOM shaman see-IMP.2SG
'Look for the shaman who has eaten my girl!'

Consequently, what changes here is not the marking (or the range of marking options) of the P participant, but rather the rules regulating differential object marking in non-finite relative clauses if compared to independent sentences.

In Apsheron Tat, the direct object in a participial relative clause can receive accusative marking, cf. (186a), like a regular definite direct object in a main clause. On the other hand, describing Apsheron Tat participial constructions, Authier (2012: 233–234) specifically points out the existence of attributive idiomatic expressions where the direct object appears unmarked, cf. (186b):

(186) Apsheron Tat (Indo-European > Iranian; Azerbaijan; Authier 2012: 234)
a. [***şir-e*** *xar-de*] *nozu* *ez-i* *xune* *nisdü*
milk-ACC eat-PTCP cat ABL-PROX house NEG.COP3
'The cat who has drunk the milk is not from this house.'

b. *Molla yeto* [*xob-e* ***şir*** *de-re*] *go doş-de-s*
Molla one good-ATTR **milk** give-PTCP cow have-PRF-3
'Mulla has a cow giving good milk.'

As a special case type of deviation in differential object marking, in languages allowing for the incorporation of a direct object in the verbal predicate, direct objects in participial relative clauses can appear to behave differently if compared to direct objects in other clause types. For example, according to Cole (1985: 48), in Imbabura Quechua, direct object incorporation (manifested in the lack of case marking and obligatory position right before the nominalized verb form) is more common in participial relative clauses than in other types of non-finite clauses. This is true despite the fact that incorporation in participial relative clauses often leads to ambiguity with regard to the grammatical role of the relativized noun phrase. For instance, the incorporated version of (187) is structurally ambiguous. It may be understood as 'the woman who bought a cow' (*warmi* 'woman' interpreted as subject and *wagra* 'cow' as incorporated object), or 'the woman which the cow bought' (*wagra* 'cow' interpreted as subject, and *warmi* 'woman' as a direct object):

(187) Imbabura Quechua (Quechuan; Ecuador; Cole 1985: 48)
[***wagra(-ta)*** *randi-shka*] *warmi*
cow(-ACC) buy-NMZ woman
'the woman who bought a cow/the woman which the cow bought'

Similarly, in Ket (Yeniseian; Russia; Nefedov 2012: 201), direct objects in relative clauses formed by action nominals are fairly often incorporated in the verb form. This apparently happens due to the fact that non-finite relative clauses usually convey a more generic or habitual meaning than their finite counterparts, which leads to perceiving the direct object as indefinite or non-specific. Very few authors of grammatical descriptions make such claim explicitly, but based on the examples generally provided in grammars it seems that the tendency might be relevant for many languages, and it can be expected to be reflected in the types of argument marking other than incorporation as well.

6.4. Encoding of non-core participants

Even though it is most common for subjects and certain direct objects to change their encoding in dependent clauses, in some languages non-core participants of participial relative clauses also happen to be expressed in a non-standard way. In all such cases attested in my sample (except for a very specific construction in Wan discussed below), the resulting type of expression is a possessive construction. For instance, in Muna (Austronesian > Celebic; Indonesia), nominalizations employed for direct object relativization allow for non-standard indirect object encoding by means of possessive suffixes. For example, the 2nd person indirect object in the relative clause in (188a) is expressed as a possessor, while in independent clauses it is regularly encoded by means of an indirect object suffix, cf. (188b):

(188) Muna (Austronesian > Celebic; Indonesia; van den Berg 2013: 236, 179)
a. *bheta* [*ka-waa-ghoo-**mu*** *ne* *robhine aitu*]
sarong NMZ-give-IO-your LOC woman that
'The sarong that was given to you by that woman.'
b. *a-gh<um>oro-**angko*** *dua* *na-se-wua*
1SG.IRR-throw.you-you also FUT-one-fruit
'I will also throw you another piece of fruit.'

In Georgian, not only direct objects of active participles can receive genitive case marking, as illustrated in (179), but also other participants marked by dative in independent sentences, compare the participial use of the verb meaning 'behold, view' in (189a) and its occurrence in an independent clause in (189b):

(189) Georgian (Kartvelian; Georgia; Hewitt 1995: 539)
a. [*mo+sa(+)ub(+)r-is* *še-m-q'ur-e*]
interlocutor-GEN PREV-PTCP.PRS-behold-PTCP.PRS(NOM)
'gazing upon the interlocutor'
b. *gul-gril-ad* *še-(Ø-)h-q'ur-eb* *sa+zog+ad+o+eb-is*
heart-cool-ADV PREV-(you-)it-view-TS(PRS) society-GEN
azr-s
opinion-DAT
'you look upon the opinion of society with a cool heart'

As mentioned in Section 6.3.1, in Wan, two participants can be expressed within a non-finite relative clause, the first as an inalienable possessor, and the second as an alienable possessor. It is important though, that it is not certain particular participants that can be expressed in a possessive construction, but rather any two participants at maximum. The example (190) illustrates a location expressed as an inalienable possessor of the action nominalization in *-wa*, which cannot be used for adnominal modification, but uses exactly the same syntax as the attributive nominalization in *-ŋ*. The nominalized clause in (190b) is in square brackets:

(190) Wan (Eastern Mande; Nikitina 2009: 26)
a. *è* *gā* *kɔ̄ŋ* *cɔ̃̄ŋ* *gó*
3SG went village distant in
'She went to a distant village.'
b. *lē* [***kɔ̄ŋ*** ***cɔ̃̄ŋ*** *gà-wà*] *lá* *lé* *éé* *nɛ̃̀* *é* *lɛ̀ŋ*
woman village distant go-NMZ show PROG REFL.ALN child DEF to
'The woman is showing her child how to go to a distant village.'

If, however, this type of expression does not allow for unambiguous interpretation of the construction, Wan employs another peculiar type of oblique argument realization, namely postpositional phrases adjoined to the entire sentence. Thus, in (191) below, the postpositional phrase *gbɑ̃̄nɛ̃̄ mū yā* 'with dogs' appears after the main verb, although it is

associated with the attributive nominalization *wìté-ŋ* 'hunt', the predicate of the relative clause:

(191) Wan (Eastern Mande; Nikitina 2009: 26)
yāá [*wìté-ŋ*] *gbɛ̀* *lá* *lé* ***gbɑ̃̄nɛ̃̄*** ***mū*** ***yā*** *é*
3SG+COP hunt-NMZ.ATTR manner show PROG dog PL with REFL
gbè *lèŋ*
son to
'He is showing to his son the way of hunting with dogs.'

The small number of cases where non-standard encoding of peripheral participants is attested in my sample is in line with the observation by Comrie & Thompson (2007: 355) on action nominals. They noted that while subjects and direct objects are interesting with respect to their encoding, other kinds of objects (marked objects) provide, in general, less interesting material, since they usually occur in the same form with both verb and action nominal.

The other possible deviation from the independent clause standard which participial relative clauses can exhibit with respect to non-core participants' expression are restrictions on their occurrence. For example, in Kalmyk, the resultative participle in *-ata*, which can serve as a predicate of an independent clause, cf. (192a), and as a predicate of a relative clause, cf. (192b), can combine with instruments and temporal adverbials in the former case, while in the latter case only temporal adverbials are commonly allowed by the speakers:

(192) Kalmyk (Mongolic; Russia; personal field notes)
a. *taka* ***kezänä*** ***sük-är*** *al-ata*
hen long.ago axe-INS kill-PTCP.PASS
'The hen was killed long ago with an axe'.
b. [***kezänä*** ***(??sük-är)*** *al-ata*] *taka* *jamaran* *ner-tä*
long.ago axe-INS kill-PTCP.PASS hen which name-ASSOC
bilä?
be.REM
'What was the name of the hen killed long ago (with an axe)?'

In Kayardild (Tangkic; Australia), resultative nominalizations in *-thirri-n-* do not allow any dependents in non-finite relative clauses apart from demoted subjects and instruments (Evans 1995: 470). Resultative and habitual participles in Hinuq (Nakh-Daghestanian > Avar-Andic-Tsezic; Russia) can in principle take all kinds of adverbials, but do so very rarely (Forker 2013: 570). In these cases, however, it is hardly possible to determine whether these restrictions are due to the desententialization of the relative clause, or they are to a large extent caused by the aspectual characteristics of the participial form. Unfortunately, in general very little data is available on the matter in descriptive grammars, and many languages seem to exhibit tendencies rather than strict rules in this domain, so by now we can only provide some scattered observations instead of a

consistent cross-linguistic survey of the expression of non-core participants in participial relative clauses.

6.5. Summary and conclusions

In this chapter, I have examined various types of deviations in participant expression attested in participial relative clauses if compared to independent sentences in respective languages. In subject expression, the most common non-standard strategy is encoding the subject as a possessor, which can be found in 32 languages of my sample. In 20 languages, the subject can be encoded as a non-core participant, receiving some oblique case marking (instrumental, dative, ablative, locative, consequentional, origin), or being introduced by an adposition. In some cases (at least 5 languages), the expression of the agent in a participial relative clause is blocked altogether or highly dispreferred. As for direct objects, in most languages of the sample (92 languages) they regularly receive standard marking in participial relative clauses. The rare deviations described in the grammars include encoding direct objects as possessors (3 languages) or datives (1 language), and changes in the rules regulating differential object marking (4 languages). In the three languages allowing for non-standard expression of peripheral participants, they also can be encoded as possessors, while Wan, in addition, employs a special construction for expressing non-core arguments of the attributive nominalization outside the relative clause (more details on argument marking in individual languages can be found in Appendix 2b). I suggest that the aforementioned deviations can mainly be explained by three types of factors, syntactic, pragmatic and semantic.

Syntax comes into play when subjects, direct objects and other participants receive possessive marking. Due to desententialization/nominalization, the predicates of non-finite relative clauses change the word class and acquire certain nominal features. As a result, they naturally switch their verbal government to nominal and start taking the kind of dependents characteristic for nominals, i.e. possessors and other genitives. It is noteworthy that this rule does not only concern the languages in which predicates of participial relative clauses actually belong to the class of nouns, e.g. Kayardild or West Greenlandic, where a separate class of adjectives does not exist whatsoever, but also some languages with well-formed adjectives, where participles belong to this class, e.g. Lithuanian or Georgian. This fact shows that nominalization in the context of participial deranking should indeed be regarded as a broad phenomenon including adjectivization. It is also important to note that direct objects and peripheral clause participants do not have their own rules requiring possessive expression. In all the cases in my sample where the direct object or some other argument can be expressed as a possessor, the subject of the same participial form always can be expressed as a possessor as well. This observation is in line with the generalization formulated in Comrie (1976) that the subject is the first candidate to receive the possessive (genitive) encoding among the verbal arguments.

Pragmatic factors appear to be relevant in the expression of agents as non-core participants in relative clauses. As I have shown in the Section 6.2.3, this kind of marking is mostly attested in participial relative clauses formed by passive participles. Many of

these forms, in addition to their relativizing functions, apparently perform the prototypical functions of passive, including agent demotion. Consequently, the agent is encoded as a peripheral argument in the relative clause. The complete prohibition of subject expression has apparently very similar reasons, since it is also attested mostly with the participles which specialize exclusively or predominantly on direct object relativization, see Section 6.2.4.

Finally, the changes in the differential marking of direct objects in participial relative clauses are best explained by the semantics of the whole construction. Non-finite relative clauses (especially those with the A participant relativized) commonly convey a generic or habitual meaning, which results in the direct objects being incorporated into the verb or expressed with no overt marking in these clauses.

7. Participial systems

7.1. Introduction

As we have seen from several examples by now, in many cases participles can be most fruitfully investigated not independently from each other, but rather within participial systems attested in individual languages. For instance, in some languages, the deviation of participial relative clauses from the independent clause standard in the TAM domain is only visible if we compare the participial paradigm and the finite paradigm, see Sections 5.2.1 and 5.2.3. By comparing the properties of affirmative and negative participles within individual languages, we can show that negative forms are cross-linguistically consistently more nominal in their nature than affirmative forms, see Section 5.3.2. The systems of participles, however, have never been studied cross-linguistically in their own right. The goal of this chapter is to provide a basic overview of the participial systems attested in the languages of the sample and discuss certain cross-linguistic tendencies related to this matter. The topic itself is very extensive and requires a lot more data and further expert analysis, so this chapter should only be regarded as the first attempt to approach it.

I will consider in turn various types of participial systems based on different criteria, starting from the least complicated, and proceeding towards the most complicated. Clearly, the least complicated system is the one containing a single participial form. I will briefly discuss this type in Section 7.2. In Section 7.3, I will discuss the systems for which participial orientation is the defining criterion for classification. Participial systems based on TAM distinctions will be considered in Section 7.4. A combination of the two criteria as a basis for a participial system will be the topic of Section 7.5. Section 7.6 will provide an overview of several most complex participial systems attested in the sample, which do not fit into any of the previous categories. In Section 7.7, I will briefly present several additional criteria relevant for participial systems in particular languages. Finally, in Section 7.8, I will summarize the findings and discuss some typological generalizations regarding participial systems in the world's languages. Unfortunately, for some languages, it was not possible to determine whether the forms included in the current sample are the only participles in the language or not. Such languages are excluded from consideration in this chapter. I also do not take into account negative participles here. Their relation to affirmative participial forms has been discussed earlier, see Section 5.3.2.

7.2. Single participle

In this section, I will consider the forms that can be classified as the only participle in their respective languages. The TAM properties of single participles have already been discussed to a certain extent in Section 5.2.4. Here I will, therefore, focus on the orientation of such forms, starting from inherently oriented (7.2.1), and then proceding to contextually oriented (7.2.2).

7.2.1. Inherently oriented participle

Three types of single inherently oriented forms are attested in the languages of the sample, namely active participles, absolutive participles, and one passive participle. *Active* forms (i.e. forms oriented towards A/S participants, see Section 3.3.2) in the participial systems of European languages always occur in opposition to either passive forms (e.g. in Russian, Lithuanian, Finnish, and North Saami), or absolutive forms (e.g. in English, German, or Hungarian), see Sections 7.3 and 7.5. In some other languages, such as Dolakha Newar (Sino-Tibetan > Mahakiranti; Nepal), Maricopa (Cochimi-Yuman > Yuman; United States) and Aguaruna (Jivaroan; Peru), the opposition is rather between subject and non-subject participles, see Section 7.3. However, there are also languages where active participles exist without a counterpart. In my sample, languages with a single active participle are found in Africa (Rif Berber and Maba), Australia (Garrwa, Martuthunira, and Wambaya), and Papunesia (Yimas and Kobon). For instance, in Kobon, the *-ep* form is the only possible predicate of a deranked relative clause, and still, its use is restricted to subject relativization, cf. example (193):

(193) Kobon (Nuclear Trans New Guinea > Madang, Papua New Guinea; Davies 1989: 31, my brackets)
Yad Hab Haułamö [*siŋib ñig* ***ñiŋ-eb***] *bi.*
1SG Hab Haułamö greens water **eat-NMZ/ADJR** man
'I am a man from Hab Haułamö who drinks cabbage water.'

Absolutive participles, as I have shown in Section 3.3.5, in general are often resultative, but based on the whole languages sample it appeared as a tendency rather than as a strict rule. Contrarily, among single absolutive participles, all of the forms exhibit strong tendency to be resultative and characterize the modified noun with respect to the state following from an accomplished event, see examples (194) and (195):

(194) Beng (Eastern Mande; Côte d'Ivoire; Serdobolskaya & Paperno 2006: 6)
a. *ŋ-ó* [*zrɪ̰ŋ̀* ***kásíé-lɛ́***] *lú.*
1SG-STAT corn fry-NMZ buy
'I'll buy some fried corn.'
b. [*ŋ̄ gā̰* ***wī-lɛ̀***] *ó ŋ̄ sɛ̰̀*
1SG foot swell-NMZ 3SG:PST 1SG ache
'My swollen foot ached.'

(195) Mochica (Mochica; Peru; Altieri 1939: 19 as cited in Adelaar 2004: 341)
œnta-zta f(e) queix [*Limac* ***tœ-d.ô***] *ñofœn*
not-NEG be return Lima **go-NMZ.STAT** man
'The man who went to Lima has not yet returned.'

Apart from the two aforementioned languages, Beng and Mochica, all the other languages in my sample whose participial system is limited to a single absolutive

participle are spoken in Europe[47], namely Albanian, Irish, Modern Greek, Italian and Basque. Interestingly, Basque, which is the only Non-Indo-European language among them, is claimed by Hualde & Ortiz de Urbina (2003: 197) to have borrowed its absolutive participle in *-tu* from Latin.

The unique language in my sample whose only participial form is *passive* is Nias[48] see example (196a). For relativizing other positions of the Accessibility Hierarchy, the language employs a finite strategy where the relative clause is introduced by the particle *si=*. It differs from the participial clause in the ability to take TAM markers (e.g. perfective *ma=*) and personal agreement markers, see (196b) for an example:

(196) Nias (Austronesian > Northwest Sumatra-Barrier Islands, Indonesia; Brown 2001: 420, 417)

a. *Tebai* *lö'ö* *la-doro* *fakake* [***ni-o-guna-'ö***]
can't NEG 3PL.REAL-carry tools **PTCP.PASS-HAVE-use-TR**
'They have to carry any tools they'll need.'

b. *Niha* [*si=ma=u-ßaßalö* *kefe*] || *sibaya-gu*
person REL=PRF=1SG.REAL-borrow money uncle-1SG.POSS
'The person I borrowed money from is my uncle.'

In a way, the existence of a single passive participle can be seen as contradicting the generalization by Keenan and Comrie (1977) who claim that each relativizing strategy has to apply to a continuous segment of the Accessibility Hierarchy starting from the left end. The *ni-* participle in Nias can relativize direct objects, but it is unable to relativize subjects, which are higher in the Hierarchy. Moreover, Nias does not have any passive constructions otherwise, which challenges the analysis of the relativized participant as the subject of a previously passivized clause (a possibility discussed earlier in Section 3.3.3). The explanation of this phenomenon would, however, require a profound investigation of Nias data, including all other possible relativization strategies in the language, which is not possible based on the available data.

It should be noted that since the relativization capacity of a single inherently oriented participle is limited to just one participant, languages of this type tend to have other relativization strategies to relativize at least other participants. For instance, Standard Average European languages employ relative pronouns (see example (3a) from Russian), which allow to relativize all the positions on the Accessibility Hierarchy. The question of how the two strategies compete within a language is an interesting research topic in its own right. It is, however, too broad to include it into the scope of the current study.

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[47] However, according to Valentin Vydrin (p.c.), absolutive participial orientation seems to be common in other Mande languages as well, so some of them can behave similarly to Beng in this respect.

[48] One more language for which only the examples of deranked relative clauses relativizing P participants are available is Luiseño (Takic, United States; Davis 1973), see sentence (161) in Section 6.2.1. However, the data on relativization in the language is so limited that it is not possible to say whether the same form can also relativize other participants or not.

7.2.2. Contextually oriented participle

A considerable number of languages in the investigated sample have only one participle which is contextually oriented, i.e. it can relativize different situation participants depending on the context. In fact, those of such participles that are –TAM forms as defined in Section 5.2.1, can, by means of various TAM markers, create oppositions very similar to those attested in TAM-based participial systems (see Section 7.4). However, since there is still only one participial marker in these languages, I will discuss them here.

Almost all of the single contextually oriented forms demonstrate full orientation in the sense discussed in Section 3.5.1, i.e. they can relativize a certain range of participants starting from the leftmost position on the Accessibility Hierarchy. Since these participles are the only participial forms in the respective languages, they are also commonly able to occur in different TAM contexts. In the majority of forms in question, the exact TAM meaning can either be conveyed by separate TAM markers, see examples in (197) from Lezgian, or inferred from the context, see examples from Apsheron Tat in (198) presented earlier in (131) and repeated here for convenience:

(197) Lezgian (Nakh-Daghestanian > Lezgic; Russia; Haspelmath 1993: 155–156)
a. *A xwanaxwa.di-z* [*q̃e za koncert.d-a ja-**da**-j*]
that friend-DAT today I:ERG concert-INESS play-**FUT**-PTCP
daldam xutax-iz k'an-zawa.
drum take.away-INF want-IPFV
'That friend wants to take away the drum that I will play today at the concert.'
b. *Dide.di sufra ek'ä-na, axpa ada-l* [*hele*
mother.ERG cloth spread-AOR then it-SRESS still
*rga-**zma**-j*] *samovar ecig-na*.
boil-**IPFV.CONT**-PTCP samovar put-AOR
'Mother spread out a cloth, and then she put a samovar on it that was still boiling.'
c. [*Q'aradi-z awat-**aj***] *q̃izil q'alu že-da-c.*
mud-DAT fall-**PTCP.AOR** gold dirty become-FUT-NEG
'Gold which has fallen into the mud does not become dirty.'

(198) Apsheron Tat (Indo-European > Iranian; Azerbaijan; Authier 2012: 233)
a. [***rous-de***] *seg dendu ne-bzeren*
bark-PTCP dog tooth NEG-EVT.strike.3
'A dog who barks does not bite.'
b. [***rous-de***] *seg kuf-de bü*
bark-PTCP dog beat-PTCP be.PST.3
'The dog who barked was beaten.'

The first option, with TAM meanings expressed by separate markers, is attested in Nivkh (Nivkh; Russia; Gruzdeva 1998), Sheko (Afro-Asiatic > North Omotic; Ethiopia; Hellenthal 2010), Kambaata (Afro-Asiatic > Highland East Cushitic; Ethiopia; Treis 2008), Manange (Sino-Tibetan > Bodic; Nepal; Hildebrandt 2004), Garo (Sino-Tibetan > Bodo-Garo; India; Burling 2004), Hup (Nadahup; Brazil; Epps 2012), and Mẽbengokre

(Nuclear-Macro-Ge > Ge-Kaingang, Brazil; Salanova 2011). In all of these languages the TAM expression can, of course, be subject to certain restrictions related to the process of desententialization discussed in detail in Section 5.2. The second option, with TAM interpretation primarily based on the context, is characteristic of participial relative clauses in Kharia (Austro-Asiatic > Munda; India; Peterson 2011), Ket (Yeniseian; Russia; Nefedov 2012), Savosavo (Savosavo; Solomon Islands; Wegener 2012), Motuna (East Bougainville; Papua New Guinea; Onishi 1994), Chimariko (Chimariko; United States; Jany 2008), and Coahuilteco (Coahuiltecan; Mexico; Troike 2010). No information on this matter is available for Dhimal (Sino-Tibetan > Dhimalic; Nepal; King 2008) and Hopi (Uto-Aztecan > Hopi; United States; Jeanne 1978).

Importantly, among single contextually oriented participles, there are almost no forms that are fixed in their temporal orientation, i.e. all of them can occur in different TAM contexts. The only possible counterexample is Pitta Pitta (Pama-Nyungan > Central Pama-Nyungan, Australia; Blake 1979), where the participial marker *-ka* is only attested in past contexts. This marker, however, is diachronically related to the regular past tense marker, so the attested restriction is a mere reflection of historical processes within the language. The observed tendency, apparently, follows from the fact that for many languages contextually oriented participles are the only (or primary) means of relativization in general. Therefore, they need to be versatile to allow the language to produce a wider variety of relative structures.

In addition to the two major options outlined above, the orientation of certain participles can be to a larger or lesser extent conditional on the temporal context. For instance, according to Yoshioka (2012: 90), in Eastern Burushaski (Burushaski; Pakistan), the only attested participle in *-um*, which has perfective meaning with no aspectual marking and imperfective meaning when attaching an imperfective suffix, changes its orientation depending on the aspect of the form. This can be regarded as an instance of the common TAM–orientation asymmetry discussed in Section 3.5.1. However, this case is not treated in detail in this dissertation due to the lack of data. For instance, judging by examples provided in Klimov & Ėdel'man (1970: 93–94), the participle in Burushaski can also be used to relativize locatives and possessors, so it might actually be contextually rather than inherently oriented.

The only language with a single participial form demonstrating limited contextual orientation is Wan (Eastern Mande; Côte d'Ivoire; Nikitina 2009). Similarly to the Nias participle in *ni-*, which is passive, the Wan attributive nominalization in *-ŋ* seems to contradict the Accessibility Hierarchy, since it freely relativizes the participants from the lower part of the Hierarchy, but is not capable of subject (A/S) relativization. However, this phenomenon can be easily explained by the fact that Wan has an agent nominalization which is used to refer to A/S participants of the situation but cannot be employed for adnominal modification (Tatiana Nikitina, p.c.). It is not, thus, a full-fledged participial form, but it covers the contexts of A/S relativization and prevents the attributive nominalization from occuring in this function.

7.3. Orientation-based systems

In this section, I will discuss the systems based exclusively on the contrasts in orientation between the members of the participial paradigm (the systems that additionally take into account TAM of the forms, such as Russian, German or Finnish, will be considered in Section 7.5). It is important to remember that the participial system attested in a given language does not necessarily represent the relativizing capacity of the language in general. Many of the languages discussed in this study, have alternative relativization strategies, which may differ in the range of participants they can relativize. This is expecially common for languages with compact systems of inherently oriented participles specializing on core participant relativization, e.g. active vs. passive, or active vs. absolutive. For instance, the languages of the Standard Average European type, cf. Haspelmath (2001), both Indo-European (e.g. Russian, German, Italian) and non-Indo-European (e.g. Finnish or Hungarian), widely employ relative pronouns as a means of relativization, cf. examples in (199) from English:

(199) a. *The girl* [***who*** *lives in this apartment*] *bakes the best cookies.*
(Subject relativization)
b. *The girl* [***with whom*** *I used to study*] *now lives in Paris.*
(Comitative relativization)
c. *The girl* [***whose*** *dog stole my door mat*] *refused to pay for it.*
(Possessor relativization)

Moreover, even languages featuring contextually oriented participles that are able relativize a broad range of core and peripheral participants, can also make use of balanced relative clauses. Dravidian languages, for example, widely use correlative structures, cf. Asher & Kumari (1997), while many Siberian languages that have been in close contact with Russian tend to develop the aforementioned European type of relative clauses, cf. Comrie (1998: 77–78). The distribution of several relativizing strategies within a language can be conditioned by a number of pragmatic and stylistic factors, apart from their relativizing capacity. This topic is, however, outside the scope of the current study, since I am only concerned with participial systems and their properties here[49].

Four types of oppositions are attested in participial systems that are based purely on the contrast in orientation: (1) active vs. passive, (2) absolutive vs. agentive, (3) subject vs. non-subect, and (4) active vs. passive vs. oblique. Languages demonstrating the first type of opposition include Middle Egyptian (Afro-Asiatic > Egyptian-Coptic; extinct; Kramer 2003), Wolio (Austronesian > Celebic; Indonesia; Anceaux 1952), Wikchamni (Yokutsan > Yokuts; United States; Gamble 1978), and Mapudungun (Araucanian; Chile; Zúñiga

[49] Furthermore, in some cases, the participial system is not even a full system of nominalized means of relativization. For instance, in Qiang, there are three nominalizers, but only two of them qualify as participles, since they attach to the verb stem and not to the whole clause. As a result, none of the Qiang participial markers taken into account in this study can relativize a P participant, because a separate construction exists for this. This should not, therefore be regarded as a violation of the Accessibility Hierarchy by a certain relativization strategy.

2000). An unusual type of active–passive system, which has already been discussed earlier, is attested in West Greenlandic (Eskimo-Aleut > Eskimo; Greenland; van der Voort 1991). The active participle in *-soq* allows to relativize intransitive subjects, cf. (200a), whereas the passive participle in *-saq* is used for direct object relativization, cf. (200b):

(200) West Greenlandic (Eskimo-Aleut > Eskimo, Greenland; van der Voort 1991: 17, 20)

a. *arnaq* [***suli-soq***]
woman work-PTCP.ACT.3SG
'the/a woman who is working'

b. *angut* [*ippassaq* ***naapi-ta-ra***] *sianiip-poq*
man yesterday meet-PTCP.PASS-POSS.1SG.ABS be.stupid-IND.3SG
'The man I met yesterday is stupid.'

Interestingly, West Greenlandic seems to have had a specialized participle *-si*/*-tsi*/*-(r)ti*/*-seq*/*-teq* for relativizing transitive subjects as well, but this suffix is no longer productive (van der Voort 1991: 18), thus leaving the participial system of West Greenlandic absolutive[50]. This can be regarded as another illustration of the relevance of absolutive orientation for participial relativization (see Section 3.3.5), even though in this case it is the whole system that is absolutive, and not a single participle.

Two languages in my sample demonstrate a strict absolutive–agentive opposition in their participial paradigms, namely, Panare (Cariban; Venezuela; Payne & Payne 2013), and Urarina (Urarina; Peru; Olawsky 2006). The agentive participle in *-jpo* in Panare can only relativize A participants, cf. (201a), whereas the past participle in *-sa'* is suitable for both S and P relativization, cf. (201b) and (201c):

(201) Panare (Cariban; Venezuela; Payne & Payne 2013: 46, 281, 125)

a. *Yu* *tu-mu'na'-yaj* *apoj* [*aro* *y-utu-**jpo*** *y-ïpïj* *kuya*].
1SG 1SG-deceive-PPERF$_1$ man rice TR-give-**PTCP.A** 3-wife DAT
'I deceived the man who gave rice to his wife.'

b. *Ñi-yaj* *Toma* *asonwa* *kanawa* [*kïmï-**sa'***].
see-PPERF$_1$ Tom three canoe rot-**PTCP.PST**
'Tom saw three rotten canoes.'

c. *Kara-pe-putu* [*y-apopë-**sa'***] *t-aparentya* *amën* *amen*.
good-ADSX.NEW-AUG TR-record-**PTCP.PST** GNO-learn you now
'You may learn very well now what has been recorded (i.e., on a casette tape).'

[50] A similar diachronic development is reported for Tat (Iranian; Azerbaijan, Russia; Authier 2012). In Old Persian, from which, according to Authier (2012: 232), Tat inherited its only participial form in *-de*/*-re*, the corresponding participle used to be absolutive, and another participle, in *-ân*, was employed for the relativization of an agent. Tat, however, lost the form in *-ân* altogether. In the case of Tat, however, the loss of the means to relativize transitive subjects led to the expansion of the relativization capacity of the remaining form in *-de*/*-re*, which switched to contextual orientation, possibly also due to the influence of East-Caucasian languages widely employing contextually oriented participles.

The last type of binary orientation system is based on the opposition between the subject and all other participants. It is attested in Dolakha Newar (Sino-Tibetan > Mahakiranti; Nepal; Genetti 2007), Maricopa (Cochimi-Yuman > Yuman; United States; Gordon 1980, 1986), and Tümpisa Shoshone (Uto-Aztecan > Numic; United States; Dayley 1989). Regarding the diachronic development of such systems, Genetti (2007: 406−407) suggests that in Dolakha Newar, there used to be a 1st/2nd person nominalizer and a 3rd person nominalizer. The former got reanalyzed as the object nominalizer, and the latter as the subject nominalizer. This hypothesis is supported by the fact that Sino-Tibetan nominalizations are multifunctional and appear in complement clauses as well, otherwise the 1st/2nd person relativizer would not have emerged in the first place. This type of binary distinction can, to a certain extent, be observed in the languages where passive participles allow for occasional orientation extension, e.g. Russian *obitaemyj ostrov* 'the island where someone lives', or Finnish *asuttu saari* with the same meaning, see Section 3.3.3.

Finally, five languages representing four different geographical macroareas demonstrate a threefold distinction in their orientation-based participial systems. Ma'di (Central Sudanic > Moru-Madi; Sudan, Uganda; Blackings & Fabb 2003), Japhug rGyalrong (Sino-Tibetan > rGyalrongic; China; Jacques 2016) and Seri (Seri; Mexico; Marlett 2012) differentiate between the active participle, the passive participle, and the oblique participle that is used for relativizing all the other participiants available for relativization in a given language. On the other hand, Muna (Austronesian > Celebic; Indonesia; van den Berg 2013) and Warihio (Uto-Aztecan > Tarahumaran; Mexico; Félix Armendáriz 2005) have three inherently oriented participles. In addition to active and passive participles, Muna has a locative nominalization in *ka-...-ha*, and Warihio has a locative nominalization in *-ači*.

7.4. TAM-based systems

When a language has several participial forms, but all of them have the same type of participial orientation, the participial system of the language is based on TAM distinctions demonstrated by the forms. This section provides an overview of the languages of this type attested in my sample. It is important to emphasize once again that I only consider affirmative participial paradigms here, while negative participles and their properties have already been discussed in Section 5.3.2.

Quite naturally, if a language has several participial forms oriented towards the same (or almost the same) range of participants, these forms are contextually oriented, since this is the type of orientation that allows a participle to function in the widest possible range of contexts. As shown in Section 5.2.3, in many cases the TAM system is reduced in comparison with the system of finite forms. In my sample, one language, Nanga (Dogon, Mali; Heath, ms.), demonstrates a twofold distinction between perfective and imperfective participles, and one more, Tamil (Southern Dravidian; India; Lehmann 1993: 284), has an opposition between future and non-future. Most other languages have a tripartite system. Interestingly, only two of them, Sakha (Turkic; Russia; Ubrjatova 1982, Pakendorf, p.c.) and Imbabura Quechua (Quechuan; Ecuador; Cole 1985) distinguish between past, present

and future. The rest tend to "mix" temporal, aspectual and modal meanings, as well as absolute and relative tense, in their participial systems. Telugu (South-Central Dravidian; India; Krishnamurti & Gwynn 1985) has a past participle, a future-habitual participle, and a durative participle. Korean (Koreanic > Korean; South Korea, North Korea; Lee 1994) has a present relative form, a present/past relative form, and a future/presumptive relative form. The distinction is between preterite, present, and potential in Tanti Dargwa (Nakh-Daghestanian > Dargwa; Russia; Sumbatova & Lander 2014), and between present, past and simultaneous in Ingush (Nakh-Daghestanian > Nakh; Russia; Nichols 2011). Finally, Marathi (Indo-European > Indic; India; Pandharipande 1997) and Wappo (Yuki-Wappo > Wappo; United States; Li & Thompson 1978) demonstrate highly complicated TAM-based systems of contextually oriented forms, but for the participles in both languages it is not totally clear if they should be considered as separate forms, or rather as instances of a single derivational process, see Section 5.2.2 for the discussion.

The only language in the sample that has a TAM-based system that is not contextually oriented is Koryak, which distinguishes between non-future nominalization, cf. (202a), and future nominalization, cf. (202b):

(202) Koryak (Northern Chukotko-Kamchatkan; Russia; Kurebito 2011: 22–23)[51]

a. *kalikal,* [*ʕamin ajɣəve qajəkmiŋ-a jəlŋ-ə-**lʕ**-ə-n*]
book.ABS.SG INTRJ yesterday boy-INSTR/ERG read-EP-**NMZ**-EP-ABS.SG
'the book which the boy read yesterday'

b. *kalikal,* [*ʕamin mitiw ɣəmnan akmec-**co-lʕəl** -Ø*]
book.ABS.SG INTRJ tomorrow I.ERG buy-**NMZ-to.be**-ABS.SG
'the book which I will buy tomorrow'

Both Koryak forms, as I have shown in Section 3.3.5, demonstrate absolutive orientation. The information on the functioning of participles in Koryak is, however, very limited, so possible motivations underlying the formation of such an exceptional system, unfortunately, have to be left outside the scope of this study.

7.5. Orientation and TAM-based system

Orientation and TAM characteristics are clearly the most relevant criteria for the organization of participial systems in languages throughout the world. As I have shown in the preceding sections, each of them can function on its own, but it is also quite common for languages to have participial systems based on both orientation and TAM simultaneously. Systems of this kind will be examined in the current section. I will start with discussing *symmetric participial systems*, where orientation and TAM are

[51] In these examples, participial relative clauses start with an element that Kurebito (2011) glosses as 'interjection', while it appears to have a function very similar to complementizers in other languages. If this was the only type of participial clauses available in Koryak, they would not be classified as participial according to the definition given in Section 2.3. However, relativization by means of non-finite forms is possible in Koryak without the 'interjection', so these examples can still be used as an illustration.

independent from each other (7.5.1), and then proceed to *asymmetric participial systems*, where the two parameters are interrelated (7.5.2).

7.5.1. Symmetric systems

An example of a symmetric participial system comes from Standard Russian (Indo-European > Slavic; Russia; personal knowledge), where the participial paradigm is built on a binary opposition in orientation (active vs. passive) and a binary opposition in tense (present vs. past), as presented in Table 15:

Table 15. Participial system in Standard Russian (personal knowledge)

	Active	Passive
Present	*-šč-*	*-m-*
Past	*-vš-*	*-n-/-t-*

A similar system is also attested in Lithuanian (Indo-European > Baltic; Lithuania; Ambrazas 2006: 326–329), the only difference being the number of tenses. Lithuanian has present, preterite, future, and habitual participles, which is parallel to the system of finite synthetic verb forms.

Interestingly, none of these two systems is, however, fully symmetric. In addition to the four forms attested in Standard Russian (see Table 15 above), speakers of the language commonly produce at least future active participles, which were discussed earlier in Section 5.2.3. Future passive participles, on the other hand, are almost never attested. The participial paradigm in Lithuanian lacks passive habitual participle, and, as a result, the language has only seven participial forms instead of expected eight. These minor deficiencies even in the most symmetric participial systems, as well as the fact that all the other orientation and TAM-based systems are asymmetric, can be regarded as indicative of the fact that participial orientation and TAM characteristics of participles are not fully independent parameters. This thesis will be further illustrated in the next section, and later discussed in slightly more detail in Section 7.8.

7.5.2. Asymmetric systems

First, as shown in Haspelmath (1994), participial systems featuring active and passive forms tend to be asymmetric: The forms that are most likely to exist in natural languages are present active participles and past passive participles, cf. Table 16 for an example of the simplest participial system of this kind in Modern Standard Arabic:

Table 16. Participial system in Modern Standard Arabic (Haspelmath 1994: 156)

	Active	Passive
Present	*kātibu* write.PTCP.ACT	
Past		*maktūbu* write.PTCP.PASS

Another type of asymmetry is attested in Koorete (Afro-Asiatic > North Omotic; Ethiopia; Hayward 1982), which also has both TAM and orientation splits within the participial system. First, participles can be imperfective and perfective. The single imperfective participial form in *-e* can be oriented at least towards the S and P participants judging from the examples (absolutive orientation or possibly wider, i.e. full contextual orientation), while the perfective participial paradigm consists of two forms. The form in *-a* is employed for relativizing S and A participants (active orientation), while the form in *-o* is claimed to be used in all other cases, at least for P relativization (passive orientation or possibly wider, i.e. limited contextual orientation). The system is presented in Table 17:

Table 17. Participial system in Koorete (Hayward 1982)

	Subject	Non-Subject
Perfective	*-a*	*-o*
Imperfective	*-e*	

A similar situation is observed in Meadow Mari (Uralic > Mari; Russia; Brykina & Aralova 2012), which has an active participle which can be used to relativize the subject of either transitive or intransitive verb, a multifunctional participle which allows the relativization of several lower positions of the Accessibility Hierarchy starting from the direct object, and a contextually oriented participle with full orientation. In examples below, the *-əše* participial form is used for subject relativization, cf. (203a), whereas the form realized as *-əmo*, *-mo* or *-me* depending on the morphophonemic context can relativize, for instance, the direct object, cf. (203b), the indirect object, cf. (203c), the locative argument, cf. (203d), and the possessor, cf. (203e):

(203) Meadow Mari (Uralic > Mari; Russia; Brykina & Aralova 2012: 480–487)

a. *Me* [*korn-əm* *sajən* ***pal-əše***] *šoför* *de-ne* *mutlan-ena.*
we way-ACC well know-PTCP.ACT driver near-INESS talk-PRS.1PL
'We are talking to the driver who knows the way well.'

b. [*Təj-ən* ***kuč'-əmo***] *kugu* *kol-et* *peš* *tamle.*
you(SG)-GEN catch-NMZ big fish-POSS.2SG very delicious
'The big fish that you caught is very delicious.'

c. [*Təj-ən* *tunem-mašte* ***polš-əmo***] *rvez-et* *de-ne* *kaj-em*
you(SG)-GEN study-VN.INESS help-NMZ boy-POSS.2SG near-INESS go-PRS.1SG
'I am walking with the boy whom you have helped in his studies.'

d. [*Saša-n* ***košt-mo***] *pölem — məj-ən pört-em.*
Sasha-GEN enter-NMZ room I-GEN house-POSS.1SG
'The room into which Sasha entered is my home.'

e. [*Saša-n ukš-əm püč'k-ən* ***nal-me***] *pušeŋge košk-en.*
Sasha-GEN branch-ACC break-CVB take-NMZ tree dry.up-PRT
'The tree whose branch Sasha broke has dried up.'

Both of these forms are fairly free in their TAM characteristics, and can refer to all kinds of situations in past or present contexts. The use of the third participle with wider orientation is, on the other hand, restricted to future contexts. The participial system of Meadow Mari is summarized in Table 18:

Table 18. Participial system in Meadow Mari

	Subject	Non-Subject
Non-Future	*-še*	*-me*
Future	*-šaš*	

7.6. Complex orientation + TAM systems

In this section, I will provide an overview of three particularly complex participial systems in which several parameters are at play and do not interact with each other in a clearly structured and symmetric way. All of these systems have both inherently and contextually oriented participles, and both +TAM and –TAM participles. For example, Kalmyk has three contextually oriented participial forms which differ in their temporal and aspectual characteristics, and one form demonstrating inherent orientation, namely the resultative passive participle in *-ata*. Sentences below illustate the use of the contextually oriented past participle in *-sən* for indirect object relativization, cf. (204a), instrument relativization, cf. (204b), and direct object relativization, cf. (204c). Interestingly, in resultative contexts, both the *-sən* participle and the *-ata* participle can be used for relativizing the P participant, cf. (204d). Unfortunately, no data is available on the distribution of the forms in this case.

(204) Kalmyk (Mongolic; Russia; Krapivina 2009: 498–501, 519)

a. [*mini kičəg ög-sən*] *küük-üd nan-də en cecg-igə ögə-v*
I.GEN puppy give-PTCP.PST girl-PL I-DAT this flower-ACC give-PST
'The girls whom I gave a puppy gave me this flower.'

b. [*mini alʲmə zur-sən*] *šir širä deerə kevt-nä*
I.GEN apple draw-PTCP.PST paint table surface lie-PRS
'The paint with which I drew the apple is on the table.'

c. [*mini al-sən*] *ükər dala üsə ög-dəg bilä*
I.GEN kill-PTCP.PST cow much milk give-PTCP.HAB be.REM
'The cow that I killed used to give a lot of milk.'

d. *Badma* [*xojr zu-n* *žil* *ardə* *ke-sən* / *ke-ʁätä*
Badma two hundred-EXT year back make-PTCP.PST / make-PTCP.PASS
širä *xamxər-čkə-v*
table break-COMPL-PST
'Badma has broken the table that was made two hundred years ago!'

The full participial system of Kalmyk is presented in Table 19:

Table 19. Participial system in Kalmyk (personal field notes)

	Contextually oriented	Inherently oriented (P)
Past	*-sən*	
Future	*-xə*	
Habitual	*-dəg*	
Resultative		*-ata*

In Hinuq (Nakh-Daghestanian > Avar-Andic-Tsezic; Russia; Forker 2013), the system is similar to Kalmyk in that it also has several contextually oriented forms (general, past, habitual, and resultative), and one inherently oriented form, locative participle in *-a*. The difference, however, is in the temporal characteristics of the locative participle, which can have any time reference depending on the context. This once again supports the idea of the special status of resultative participles, see Section 5.7 for the discussion.

A very complicated participial system can be found in Matsés. First of all, the language has two sets of relativizers/nominalizers which differ in the factors that regulate their distribution. The first set of suffixes derives contextually oriented verb forms that can refer to virtually any participant of the situation, and the choice of the form is defined by tense/evidentiality distinctions. The second set of suffixes, which is more common in discourse, derives the verb forms that do not show any tense distinctions, but are used depending on the relativized participant, i.e. they demonstrate inherent orientation. The temporal reference of the relative clause, however, does play a role in this case as well, since it determines the exact orientation of inherently oriented verb forms. For instance, the suffix *-quid*, which is used to refer to all types of subjects in present or generic contexts and can thereby be classified as an active participle, shows ergative orientation when used to encode the events in the recent past. Unfortunately, the only available grammar of Matsés does not provide any good sentential examples to illustrate this ergativity split. All the information on the participial system of Matsés is summarized in Table 20:

Table 20. Participial system in Matsés (Fleck 2003: 316)

<table>
<tr><th></th><th colspan="2">Remote Past</th><th colspan="2">Distant Past</th><th colspan="2">Recent Past</th><th>Present/</th><th>Future</th></tr>
<tr><th></th><th>Observ.</th><th>Infer.</th><th>Observ.</th><th>Infer.</th><th>Observ.</th><th>Infer.</th><th>Generic</th><th></th></tr>
<tr><td>A</td><td rowspan="5">-ampid</td><td rowspan="5">-denned</td><td rowspan="5">-nëdaid</td><td rowspan="5">-ondaid</td><td rowspan="5">-boed</td><td>-quid</td><td rowspan="2">-quid</td><td rowspan="2">-quid</td></tr>
<tr><td>S</td><td rowspan="4">-aid</td></tr>
<tr><td>P</td><td>-aid</td><td rowspan="4">-te</td></tr>
<tr><td>Instrum.</td><td>-te</td></tr>
<tr><td>Affected
Peripheral
Participant</td><td>-aid</td></tr>
</table>

7.7. Other criteria for classification

Finally, it should be mentioned that in certain cases neither participial orientation nor TAM meaning can fully account for the distribution of participial forms in a given language. For instance, Kolyma Yukaghir has two contextually oriented forms that are commonly used for relative clause formation, the active attributive form in *-je* and the action nominal in *-l*. The range of participants that can be relativized by these forms is almost the same, and both of them inflect for tense in the same fashion, so none of these two parameters is crucial for the choice of the form. On the other hand, when the head of a relative clause is indefinite, only the *-je* form can be used. First, it is reflected in the fact that only the head nouns modified by this form can be accompanied by the numeral determiner *irkin* 'one' indicating indefiniteness, cf. (205a). Second, even when this determiner is not present, the relative clause whose head's indefiniteness is inferred from the previous context, can only have *-je* form as its predicate, cf. (205b):

(205) Kolyma Yukaghir (Yukaghir; Russia; Nikolaeva 1997: 21, 55 as cited in Nagasaki 2014: 91)

a. *irkin ʃoromə jaqdat'ə-lə* ***irkin*** [*omnii modo-jə*] *meestə-ŋin*
one person horse-INS one people live-NMZ place-DAT
kebe-s'.
go.away-IND.INTR.3
'One man went by horse to a place where the people lived.'

b. *met tudaa* [*amdə-j*] *ʃoromə əl=juə-je n'ə=qajin.*
1SG before die-NMZ person NEG=see-IND.INTR.1SG NEG=when
'I never saw dead person before.'

Contrarily, relative clauses expressing propositions familiar to the hearer and having definite noun phrases as their heads can employ both non-finite forms as their predicates. Thus, the *-l* form appears to be restricted to relative clauses with definite head nouns, while the *-je* form has no restrictions regarding the pragmatic status of the relativized participant. Therefore, it can be concluded that the distribution of participial forms in Kolyma Yukaghir is based on pragmatics. Presumably, this can reflect one of the first

steps in the development of the regular participial orientation, since different participants are not typically equal in their definiteness status. This issue, however, needs further language-internal investigation before any claims regarding possible diachronic development can be made.

In the Muna language (Austronesian > Celebic; Indonesia) direct object relative clauses can be formed by means of two different types of deranked verb forms, which do not seem to demonstrate any semantic or functional difference (van den Berg 2013: 235). The first form is passive participle in *ni-*, and the second is nominalization marked by the prefix *ka-*. Both types of relative clauses are clearly deranked, since they have very limited capacity of expressing tense, and encode agents as possessors (van den Berg 2013: 230–238). The only parameter with respect to which the two types clearly differ is the degree of nominalization/deranking, the latter form being more nominalized, see Section 5.3.1 for discussion. This distinction, however, is clearly fully language specific, and should rather be explained by certain diachronic processes rather than any functional motivations.

7.8. Summary and conclusions

In the present chapter, I have discussed possible criteria for the organization of participial paradigms, and proposed a preliminary classification of participial systems attested in the languages of the sample. As I have shown, participial systems are most commonly based on orientation (7.3), TAM properties of the forms (7.4), or on both of these criteria simultaneously (7.5 and 7.6). I have also provided an overview of participles that do not form an opposition with any other participial forms (7.2). Data on all the participial systems in the languages of the sample is summarized in Tables from 21a to 21m in the end of this section, and the geographical distribution of systems is presented on the map in Figure 15.

The data presented in the chapter allows to make two important generalizations regarding the organization of participial systems in the languages of the sample. The first one concerns the applicability of the Accessibility Hierarchy to separate participles and participial systems. Based on the investigation of relative clauses in a sample of 80 languages, Cristofaro (2003) formulates the following generalization:

(206) If deranked verb forms (in particular, forms showing no TAM or person agreement distinctions, or forms with case marking or adpositions) are used for a role less accessible to relativization, then they are used for the roles more accessible to relativization. (Cristofaro 2003: 208)

The generalization obviously does not hold if applied to individual participles. Most obvious counterexamples are various forms inherently oriented towards certain peripheral participants, such as instrumentals and locatives, see Section 3.4 for more information. The generalization, however, works if considered in connection with participial systems. It can, therefore be reformulated in the following way to account for all of the observed diversity:

(207) If a language has a participial form inherently oriented towards a certain participant, then it has participial forms inherently oriented towards all the participants more accessible to relativization[52].

This generalization can be seen as complementing the claim by Keenan & Comrie (1977) regarding the availability of a certain relativization strategy for a continuous segment of the Accessibility Hierarchy. It confirms the original observation, at the same time highlighting the peculiarity of participial forms among the range of various relativization strategies.

The second important generalization stems from the fact that almost all participial systems considered in this study are asymmetric if they are based on both orientation and TAM characteristics of participial forms, see Section 7.5.2. Based on this, we can conclude that these two parameters are not independent from each other but rather tightly intertwined. This observation is in line with the earlier studies on interrelation between morphosyntactic alignment and TAM, such as DeLancey (1981, 1990). These studies have been later criticized for proposing far-fetched functional explanations where diachronic account has more explanatory power, cf. Cristofaro (2012). However, the study of participles presented in this dissertation provides an ample amount of evidence supporting the semantic and pragmatic nature of this connection.

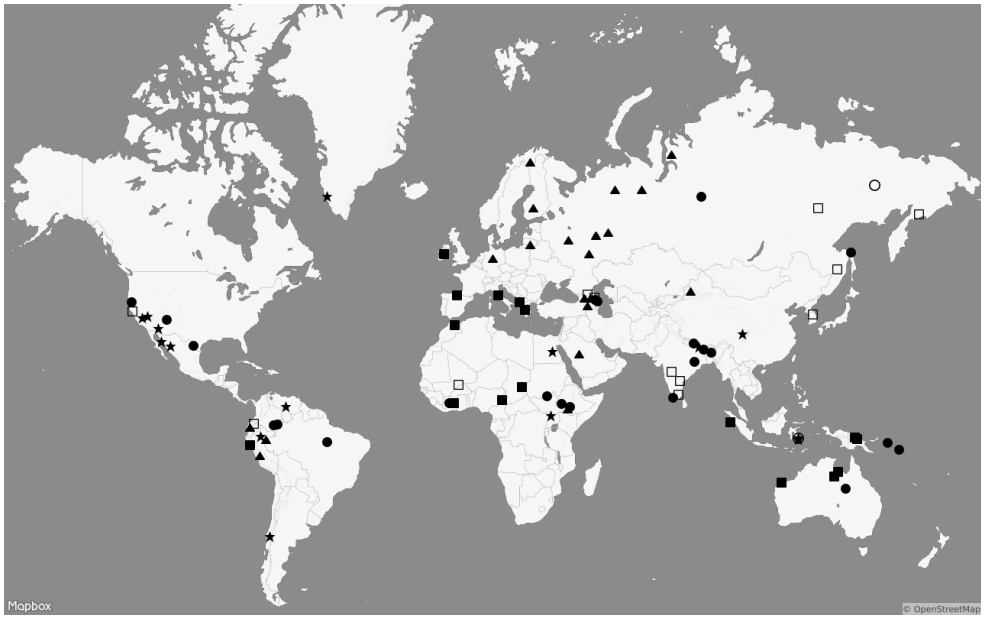

Figure 15. Participial systems
■ *single inherently oriented form* ● *single contextually oriented form* ★ *orientation-based* ○ *TAM-based* ▲ *orientation- and TAM-based* □ *other*

[52] I am grateful to Alexander Piperski for raising the discussion of this issue at the XII Conference on Typology and Grammar for Young Scholars (Saint Petersburg, 19–21 November 2015).

Table 21a. Languages with single inherently oriented participle (active)

FAMILY	GENUS	LANGUAGE
AUSTRALIA (3/5)		
Garrwan	Garrwan	Garrwa
Mirndi	Wambayan	Wambaya
Pama-Nyungan	Western Pama-Nyungan	Martuthunira
PAPUNESIA (2/7)		
Lower Sepik-Ramu	Lower Sepik	Yimas
Nuclear Trans New Guinea	Madang	Kobon
AFRICA (3/12)		
Afro-Asiatic	Berber	Rif Berber
Atlantic-Congo	North Atlantic	Fula
Maban	Maban	Maba

Table 21b. Languages with single inherently oriented participle (passive)

FAMILY	GENUS	LANGUAGE
PAPUNESIA (1/7)		
Austronesian	Northwest Sumatra-Barrier Islands	Nias

Table 21c. Languages with single inherently oriented participle (absolutive)

FAMILY	GENUS	LANGUAGE
SOUTH AMERICA (1/16)		
Mochica	Mochica	Mochica
AFRICA (1/12)		
Mande	Eastern Mande	Beng
EURASIA (5/47)		
Basque	Basque	Basque
Indo-European	Albanian	Albanian
	Celtic	Irish
	Greek	Modern Greek
	Romance	Italian

Table 21d. Languages with single contextually oriented participle (full)

FAMILY	GENUS	LANGUAGE
AUSTRALIA (1/5)		
Pama-Nyungan	Central Pama-Nyungan	Pitta Pitta
PAPUNESIA (2/7)		
East Bougainville	East Bougainville	Motuna
Savosavo	Savosavo	Savosavo
NORTH AMERICA (3/13)		
Chimariko	Chimariko	Chimariko
Coahuiltecan	Coahuiltecan	Coahuilteco
Uto-Aztecan	Hopi	Hopi
SOUTH AMERICA (3/16)		
Nuclear-Macro-Ge	Ge-Kaingang	Mẽbengokre
Nadahup	Nadahup	Hup
Tucanoan	Tucanoan	Barasano
AFRICA (3/12)		
Afro-Asiatic	Highland East Cushitic	Kambaata
	North Omotic	Sheko
Kadugli-Krongo	Kadugli	Krongo
EURASIA (9/47)		
Austro-Asiatic	Munda	Kharia
	Southern Dravidian	Malayalam
Indo-European	Iranian	Apsheron Tat
Nakh-Daghestanian	Lezgic	Lezgian
Nivkh	Nivkh	Nivkh
Sino-Tibetan	Bodic	Manange
	Bodo-Garo	Garo
	Dhimalic	Dhimal
Yeniseian	Yeniseian	Ket

Table 21e. Languages with single contextually oriented participle (limited)

FAMILY	GENUS	LANGUAGE
AFRICA (1/12)		
Mande	Eastern Mande	Wan

Table 21f. Languages with an orientation-based system (active vs. passive)

FAMILY	GENUS	LANGUAGE
PAPUNESIA (1/7)		
Austronesian	Celebic	Wolio
NORTH AMERICA (2/13)		
Eskimo-Aleut	Eskimo	West Greenlandic
Yokutsan	Yokuts	Wikchamni
SOUTH AMERICA (1/16)		
Araucanian	Araucanian	Mapudungun
AFRICA (1/12)		
Afro-Asiatic	Egyptian-Coptic	Middle Egyptian

Table 21g. Languages with an orientation-based system (absolutive vs. agentive)

FAMILY	GENUS	LANGUAGE
SOUTH AMERICA (2/16)		
Cariban	Cariban	Panare
Urarina	Urarina	Urarina

Table 21h. Languages with an orientation-based system (subject vs. non-subject)

FAMILY	GENUS	LANGUAGE
NORTH AMERICA (2/13)		
Cochimi-Yuman	Yuman	Maricopa
Uto-Aztecan	Numic	Tümpisa Shoshone
EURASIA (1/47)		
Sino-Tibetan	Mahakiranti	Dolakha Newar

Table 21i. Languages with an orientation-based system (threefold)

FAMILY	GENUS	LANGUAGE
NORTH AMERICA (2/13)		
Seri	Seri	Seri
Uto-Aztecan	Tarahumaran	Warihio

AFRICA (1/12)		
Central Sudanic	Moru-Ma'di	Ma'di
EURASIA (1/47)		
Sino-Tibetan	rGyalrongic	Japhug rGyalrong

Table 21j. Languages with an TAM-based system

FAMILY	**GENUS**	**LANGUAGE**
NORTH AMERICA (1/13)		
Yuki-Wappo	Wappo	Wappo
SOUTH AMERICA (1/16)		
Quechuan	Quechuan	Imbabura Quechua
AFRICA (1/12)		
Dogon	Dogon	Nanga
EURASIA (9/47)		
Chukotko-Kamchatkan	Northern Chukotko-Kamchatkan	Koryak
Dravidian	South-Central Dravidian	Telugu
	Southern Dravidian	Tamil
Indo-European	Indic	Marathi
Koreanic	Korean	Korean
Nakh-Daghestanian	Dargwa	Tanti Dargwa
	Nakh	Ingush
Turkic	Turkic	Sakha
Tungusic	Tungusic	Nanai

Table 21k. Languages with an orientation- and TAM-based system (symmetric)

FAMILY	**GENUS**	**LANGUAGE**
EURASIA (2/47)		
Indo-European	Baltic	Lithuanian
	Slavic	Russian

Table 21l. Languages with an orientation- and TAM-based system (asymmetric)

FAMILY	GENUS	LANGUAGE
SOUTH AMERICA (3/16)		
Barbacoan	Barbacoan	Tsafiki
Pano-Tacanan	Panoan	Matsés
Quechuan	Quechuan	Tarma Quechua
AFRICA (1/12)		
Afro-Asiatic	North Omotic	Koorete
EURASIA (14/47)		
Afro-Asiatic	Semitic	Modern Standard Arabic
Indo-European	Armenian	Armenian
	Germanic	German
Kartvelian	Kartvelian	Georgian
Mongolic	Mongolic	Kalmyk
Nakh-Daghestanian	Avar-Andic-Tsezic	Hinuq
Uralic	Finnic	Finnish
	Mari	Meadow Mari
	Mordvin	Erzya
	Permic	Beserman Udmurt, Komi-Zyrian
	Saami	North Saami
	Samoyedic	Tundra Nenets
	Ugric	Northern Khanty

Table 21m. Languages with other oppositions in participial systems

FAMILY	GENUS	LANGUAGE
PAPUNESIA (1/7)		
Austronesian	Celebic	Muna
EURASIA (1/47)		
Yukaghir	Yukaghir	Kolyma Yukaghir

8. Conclusions and further prospects

8.1. Summary of the findings

This dissertation aimed at filling the gap that has existed so far in the studies of non-finite verb forms and relativization. One of its primary goals was to introduce participles as a cross-linguistically valid and consistent category to typological studies and studies of individual languages. In order to do this, it was necessary to identify the exact aspects in which participles differ from similar typological concepts, such as nominalizations, converbs, infinitives, etc. These aspects have been discussed in different chapters throughout the dissertation.

I started in Chapter 2 by formulating a definition of participle that allows for fruitful cross-linguistic comparison. It is based on several acknowledged comparative concepts, *relative clause*, *verb form* and *deranking*, and can, therefore, be applied to verb forms in any language irrespective of its typological characteristics. Based on the proposed definition, I compiled a representative sample of 100 languages that possess the relevant forms. Participles and participial systems in these languages were examined with respect to a number of parameters in further chapters.

Chapter 3 elaborated on the concept of participial orientation, which has never been a subject of a wide-scale cross-linguistic investigation, but appears to be useful in describing participial forms in individual languages. Participles in the world's languages can be either inherently oriented towards a particular core or peripheral participant, or change their orientation depending on the context. I showed that the most prominent types of both inherently and contextually oriented participles (active, absolutive and contextually oriented with full relativizing capacity) are primarily motivated by pragmatic factors, and the structure of the participial paradigm can further trigger the development of other types of participial orientation (e.g. passive participles, or participles with limited contextual orientation). I also discussed various means that participles use to widen their relativizing capacity, and demonstrated that the use of resumptive elements in participial relative clauses is a much more widespread phenomenon than it has been assumed in typological literature to date.

Chapters 4–6 were devoted to the differences that participles demonstrate if compared to predicates of independent sentences. Following major theoretical approaches to subordination and desententialization outlined in Chapter 4, I focused on two main domains in which the difference between dependent and independent forms may lie, namely the verb form and the encoding of various clausal participants.

In Chapter 5, I discussed the deviations from the main clause standard that participial relative clauses exhibit in the morphosyntactic domain. Most commonly they demonstrate various peculiarities in TAM marking, such as restrictions on the expession of certain TAM values by separate affixes (–TAM participles), or within a paradigm (+TAM participles). Participles also tend to differ from independent clause predicates in the domain of polarity. Negative meaning in participial relative clauses can be conveyed by nominal negation markers or specialized negative participles, and in some cases its

expression is not possible altogether. Verbal subject agreement is almost never allowed in participial relative clauses. On the other hand, in many languages, participles acquire nominal agreement, which is crucial in regards to the prototypical participial function of adnominal modification. Importantly, I was also able to show that the expression of various morphosyntactic features in the participles of the sample confirms earlier hierarchies of verbal and nominal features involved in desententialization/nominalization, which were formulated on a more general level.

Chapter 6 focused on the types of deviations in participant expression attested in participial relative clauses if compared to independent sentences. The participant that is most likely to change its way of expression is the subject (S/A), but some languages employ non-standard ways of encoding other participants as well. The most common non-standard coding strategy is possessive, which is very natural considering that most participles are highly nominalized. Based on the analysis of the data, I proposed three main types of factors that can motivate the attested deviations, syntactic, pragmatic and semantic. Syntax is mainly responsible for the encoding of various arguments of participles as adnominal dependents (due to the change of the the word class). Pragmatic factors motivate the expression of agents as non-core participants in relative clauses, since many participial forms, in addition to their relativizing functions, perform the prototypical functions of passive, including agent demotion. As a result, the agent is encoded as a peripheral argument in the relative clause. Generic or habitual meaning characteristic of participial relative clauses in many languages can, in turn, motivate changes in the differential marking of direct objects in participial relative clauses.

In Chapter 7, all of the parameters considered earlier were studied together in the survey of participial systems. As I showed, participial systems in the languages with more than one form can be based on orientation, TAM distinctions or the intersection of the two. Two important generalizations were formulated concerning the organization of participial systems. First, if a language has a participial form inherently oriented towards a certain participant, then it has participial forms inherently oriented towards all the participants more accessible to relativization. This can be regarded as an extension of the Keenan & Comrie's (1977) Accessibility Hierarchy related specifically to participles. Second, based on the fact that almost all participial systems considered in this study are asymmetric if they are based on both orientation and TAM characteristics of participial forms, I was able to conclude that these parameters are clearly interrelated, which reflects the mixed nature of the participle as a hybrid (verbal–adjectival) category.

The findings reported in different chapters of the dissertation demonstrate a significant diversity in the morphology of participles, their syntactic behaviour and the oppositions they form in the system of the language. I hope to have shown, however, that despite their versatility and multifunctionality, participles exhibit enough idiosyncratic properties to be recognized as a cross-linguistically relevant category and studied in their own right.

8.2. Further prospects

Being the first systematic attempt to account for the cross-linguistic variation of participles and participial relative clauses, this dissertation naturally invites further research on a great number of different issues. First of all, as I mentioned in the introduction to this study (Section 1.3), there is currently a growing interest in typology towards studying the geographical distribution of linguistic phenomena and explaining the patterns of attested linguistic diversity. When collecting the data for the current study, I aimed at including languages from all over the world by using a sample stratified at the level of genus, and paying particular attention to the less studied geographical areas, such as Papunesia or the Americas. However, since my main goal was simply to find as many languages featuring participial forms as possible, I did not strictly follow the procedures that are required in statistically oriented studies, cf. Dryer (1989), Rijkhoff & Bakker (1998), Bickel (2008), and others. Thus, all the observations I could make on the geographical distribution of participles are rather impressionistic. The next step, therefore, would be a quantitative study on the distribution of participles and participial relative clauses, which would focus on establishing and explaining areal skewings of forms, structures, and their particular features. Various types of oppositions discovered in this dissertation can serve as a basis for variables considered in this type of quantitative investigation. The study can be further complemented by examining the correlations of participial types in given languages with certain basic typological parameters, e.g. word order, head- vs. dependent-marking, morphological type of the language, etc.

Another possible approach to participles concerns their position on the verb–noun cline. It is an acknowledged fact among linguists that participles (and adjectives) possess both verbal and nominal properties, and are hybrid categories in their nature, cf. Ross (1972), Hopper & Thompson (1984). The verb–noun cline can, thus, be represented as a continuum with verb and noun as extreme points, and participle and adjective somewhere in between. In his article on participles, Haspelmath (1994: 171–172) proposes a special case of this general scale, namely the scale representing the relative positions of five types of forms with respect to five relevant parameters, see (208):

(208) Scale of participant nominalizations (Haspelmath 1994: 171)

	(finite verb	relative participle	oriented participle	verbal adjective	participant noun
(A) more verbal	←				→ more nominal
(B) more inflectional		←			→ more derivational
(C) more relational	←				→ more absolute
(D) less inherent orientation	←				→ more inherent orientation
(E) less time-stable	←				→ more time-stable

As mentioned above, the intermediate status of participles in general is not a recent discovery. However, in this scale Haspelmath, in fact, makes a statement that is of great importance for the overall typology of participles. He suggests that contextually oriented participles (or relative participles in his terms) are *intrinsically* less nominal than inherently oriented participles. Although this claim seems to hold for the convenience

sample considered in Haspelmath's article, this observation needs to be tested further, and the main problem here is developing an appropriate methodology. Indeed, many typologists have noted in their works that detailed cross-linguistic comparison of different verb forms in different languages with respect to the degree of nominalization or (nonf)initeness they exhibit is not very fruitful, since the morphosyntactic properties relevant to the phenomena in question (e.g. expression of TAM distinctions, compatibility with nominal morphology, encoding of participants and modifiers, etc.), differ tremendously across languages, cf., for instance, Cristofaro (2003), or Nikolaeva (2013). On the other hand, participial relative clauses are considerably more homogeneous if compared to all kinds of subordinate forms and structures in general, which might facilitate the systematic cross-linguistic analysis.

Yet another question is the degree of nominalization of participles if compared to other non-finite verb forms, such as event and participant nominalizations. The aforementioned problem of methodology is obviously even more crucial here. In order to avoid dealing with the forms and structures that are too diverse, a possible solution would be comparing the degree of desententialization/nominalization of participles within one language depending on the constructions they are used in, which is quite in line with the suggestions by Dryer (1997), Croft (2001), and Cristofaro (2007), as well as with Creissels' (2009) constructional approach to finiteness. For many languages this is possible, because the forms that fit into the typological definition of participle adopted in this study (see Section 2.3) are highly multifunctional. In particular, they can perform not only the prototypical adjectival function of adnominal modification, but also a referring function typical of nouns (see Section 2.4). The prediction is, thus, that one and the same form will exhibit more signs of nominalization when used nominally than the same form functioning as an adnominal modifier. Some data supporting this prediction is provided at least by Kurebito (2011) for Koryak, Vallejos Yopán (2010) for Kokama-Kokamilla, van den Berg (2013) for Muna, and Nikolaeva (2014) for Tundra Nenets. This method, however, is not suitable for the languages where the use of participles is limited to adnominal contexts, and applying it, therefore, creates the risk of the final language sample being too limited for conclusive cross-linguistic generalizations.

The current study focused on the typological classification of participles based on the synchronic data provided by descriptive grammars. However, for a deeper understanding of participles and their nature, it is very important to examine, to a possible extent, also the diachronic development of participial constructions, since looking at the historical processes has been proved to be a fruitful way to explain certain cross-linguistic tendencies, cf. Cristofaro (2012). In linguistic literature, very little has been written so far about the origin of participles as a word class. Hendery (2012: 172) suggests that at least some deranked relative clauses might have originated as deverbal adjectives whose verbal nature allowed the addition of arguments and adjuncts, expanding them into full (though deranked) clauses. This scenario is also discussed by Haspelmath (1994) and Harris & Campbell (1995), but the evidence for this type of development is still deficient.

The attention to diachrony advocated above implies the study of genealogically related language groups that demonstrate considerable variation in the types of participles and participial constructions. Uralic and Indo-European language families are particularly prominent in this respect. Since in most languages within one family it is usually possible

to identify cognates among participial markers, the observed variation is clearly a result of diachronic development. However, it is not always clear in which direction the changes proceeded, or what the factors triggering them might have been, for instance, whether it was certain internal reasons, or rather language contact. Areal typology is, therefore, also very important in the study of participles. For example, Uralic languages with extensive variation in the domain of participial orientation clearly follow areal tendencies in the distribution of participial types, see Shagal (2016).

In this dissertation, I have briefly discussed possible connections of certain properties of participles and some other domains in respective languages, e.g. participial orientation and morphosyntactic alignment in independent sentences (see Sections 3.3.1 and 3.8). It is, however, still an open question (not directly related to the goals I had in the current study) what other domains in a language can exhibit connection to various properties of the participles and/or participial systems. One noteworthy domain in this respect is switch-reference. Overall & Vuillermet (2015) show that the indigenous languages of Western Amazonia are rich in typologically rare switch-reference systems. In particular, they treat S participants in the same way as P participants but differently from A participants, which is parallel to the absolutive–ergative morphosyntactic alignment. At the same time, the only three languages with absolutive–agentive patterning in their participial systems found in my sample, Urarina, Kokama-Kokamilla and Panare (see Sections 7.3 and 7.5.1) are spoken roughly in the same region (Peru and Southern Venezuela). Like relative clauses, switch-reference is the domain related to the formation of complex sentences, so the attested connections presumably reflect the same type of functional motivations.

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Appendix 1. Languages investigated in the study

1a. Languages of the core sample

Family	Genus	Language	Country	Source
Australia				
Garrwan	Garrwan	Garrwa	Australia	Furby & Furby (1977), Mushin (2012)
Pama-Nyungan	Western Pama-Nyungan	Martuthunira	Australia	Dench (1995)
Pama-Nyungan	Central Pama-Nyungan	Pitta Pitta	Australia	Blake (1979)
Tangkic	Tangkic	Kayardild	Australia	Evans (1995)
Mirndi	Wambayan	Wambaya	Australia	Nordlinger (1993)
Papunesia				
Austronesian	Celebic	Muna	Indonesia	van den Berg (2013)
		Wolio	Indonesia	Anceaux (1952), Foley (1980)
	Northwest Sumatra-Barrier Islands	Nias	Indonesia	Brown (2001)
East Bougainville	East Bougainville	Motuna	Papua New Guinea	Onishi (1994)
Lower Sepik-Ramu	Lower Sepik	Yimas	Papua New Guinea	Foley (1991)
Savosavo	Savosavo	Savosavo	Solomon Islands	Wegener (2012)
Nuclear Trans New Guinea	Madang	Kobon	Papua New Guinea	Davies (1989)
North America				
Coahuiltecan	Coahuiltecan	Coahuilteco	Mexico	Troike (2010)
Chimariko	Chimariko	Chimariko	United States	Jany (2008)
Seri	Seri	Seri	Mexico	Marlett (2012)
Cochimi-Yuman	Yuman	Maricopa	United States	Gordon (1980, 1986)
Eskimo-Aleut	Eskimo	West Greenlandic	Greenland	Fortescue (1984), van der Voort (1991)
Kalapuyan	Kalapuyan	Santiam Kalapuya	United States	Banks (2007)
Yokutsan	Yokuts	Wikchamni	United States	Gamble (1978)
Uto-Aztecan	Hopi	Hopi	United States	Jeanne (1978)

	Numic	Tümpisa Shoshone	United States	Dayley (1989)
	California Uto-Aztecan	Luiseño	United States	Davis (1973)
	Tarahumaran	Warihio	Mexico	Félix Armendáriz (2005)
	Tepiman	Nevome	Mexico	Shaul (1986)
Yuki-Wappo	Wappo	Wappo	United States	Li & Thompson (1978), Thompson et al. (2006)
South America				
Araucanian	Araucanian	Mapudungun	Chile	Zúñiga (2000), Smeets (2008), Golluscio (2012)
Arawakan	Inland Northern Arawakan	Tariana	Brazil	Aikhenvald (2003)
Barbacoan	Barbacoan	Tsafiki	Ecuador	Dickinson (2002)
Cariban	Cariban	Panare	Venezuela	Payne & Payne (2013)
Mochica	Mochica	Mochica	Peru	Adelaar (2004), Altieri (1939)
Cofán	Cofán	Cofán	Colombia, Ecuador	Fischer & van Lier (2011)
Jivaroan	Jivaroan	Aguaruna	Peru	Overall (2007)
Nuclear-Macro-Ge	Ge-Kaingang	Mẽbengokre	Brazil	Salanova (2011)
Nadahup	Nadahup	Hup	Brazil	Epps (2008, 2012)
Pano-Tacanan	Panoan	Matsés	Brazil, Peru	Fleck (2003)
Quechuan	Quechuan	Imbabura Quechua	Ecuador	Cole (1985)
		Tarma Quechua	Peru	Adelaar (2011)
Tucanoan	Tucanoan	Barasano	Colombia	Jones & Jones (1991)
Tupian	Tupí-Guaraní	Kamaiurá	Brazil	Seki (1990, 2000)
Tupian	Tupí-Guaraní	Kokama-Kokamilla	Peru	Vallejos Yopán (2010)
Urarina	Urarina	Urarina	Peru	Olawsky (2006)
Africa				
Afro-Asiatic	Berber	Rif Berber	Algeria, Morocco	Kossmann (2000, 2003, 2007)
Afro-Asiatic	Egyptian-Coptic	Middle Egyptian	extinct	Depuydt (1997), Kramer (2003), Haspelmath (2015)
Afro-Asiatic	Highland East Cushitic	Kambaata	Ethiopia	Treis (2008)

Afro-Asiatic	North Omotic	Koorete	Ethiopia	Hayward (1982)
Afro-Asiatic	North Omotic	Sheko	Ethiopia	Hellenthal (2010)
Atlantic-Congo	North Atlantic	Fula	Cameroon	Arnott (1970)
Central Sudanic	Moru-Ma'di	Ma'di	Sudan, Uganda	Blackings & Fabb (2003)
Dogon	Dogon	Nanga	Mali	Heath (ms.)
Kadugli-Krongo	Kadugli	Krongo	Sudan	Reh (1985)
Maban	Maban	Maba	Chad	Weiss (2009)
Mande	Eastern Mande	Beng	Côte d'Ivoire	Paperno (2006)
Mande	Eastern Mande	Wan	Côte d'Ivoire	Nikitina (2009)
Eurasia				
Afro-Asiatic	Semitic	Modern Standard Arabic	multiple	Hazout (2001), Badawi et al. (2004), Ryding (2005), Doron & Reintges (2010)
Austro-Asiatic	Munda	Kharia	India	Peterson (2011)
Basque	Basque	Basque	Spain, France	Hualde, Ortiz de Urbina (2003)
Burushaski	Burushaski	Burushaski	Pakistan	Klimov & Ėdel'man (1970), Berger (1998), Yoshioka (2012)
Chukotko-Kamchatkan	Northern Chukotko-Kamchatkan	Koryak	Russia	Zhukova (1972), Kurebito (2011)
Dravidian	South-Central Dravidian	Telugu	India	Krishnamurti & Gwynn (1985)
Dravidian	Southern Dravidian	Malayalam	India	Asher & Kumari (1997)
Dravidian	Southern Dravidian	Tamil	India	Keenan & Comrie (1977), Lehmann (1993)
Indo-European	Albanian	Albanian	Albania	Newmark et al. (1982), Buchholz & Fiedler (1987), Makartsev, p.c., Rusakov, p.c.
Indo-European	Armenian	Armenian	Armenia	Dum-Tragut (2009)
Indo-European	Baltic	Lithuanian	Lithuania	Ambrazas (2006), Arkadiev (2014)
Indo-European	Celtic	Irish	Ireland	Ó Baoill (2009),

				d'Altuin, p.c.
Indo-European	Germanic	German	Germany	Haspelmath (1994), personal knowledge
Indo-European	Greek	Modern Greek	Greece	Mackridge (1985), Anagnostopoulou (2003), Hämeen-Anttila, p.c., Korhonen, p.c.
Indo-European	Indic	Marathi	India	Pandharipande (1997), Dhongde & Wali (2009)
Indo-European	Iranian	Apsheron Tat	Azerbaijan	Authier (2012)
Indo-European	Romance	Italian	Italy	Maiden & Robustelli (2000), Di Garbo, p.c.
Indo-European	Slavic	Russian	Russia	personal knowledge
Kartvelian	Kartvelian	Georgian	Georgia	Harris (1981), Hewitt (1995)
Koreanic	Korean	Korean	South Korea, North Korea	Lee (1994), Shin (2003), Kim, p.c.
Mongolic	Mongolic	Kalmyk	Russia	Bläsing (2003), Krapivina (2009), personal fieldwork notes
Nakh-Daghestanian	Avar-Andic-Tsezic	Hinuq	Russia	Forker (2013)
Nakh-Daghestanian	Dargwa	Tanti Dargwa	Russia	Sumbatova & Lander (2014)
Nakh-Daghestanian	Lezgic	Lezgian	Russia, Azerbaijan	Haspelmath (1993)
Nakh-Daghestanian	Nakh	Ingush	Russia	Nichols (2011)
Nivkh	Nivkh	Nivkh	Russia	Gruzdeva (1998), Mattissen (2003), Nedjalkov & Otaina (2013), personal fieldwork notes
Sino-Tibetan	Bodic	Manange	Nepal	Hildebrandt (2004), Genetti et al. (2008)
Sino-Tibetan	Bodo-Garo	Garo	India	Burling (2004)
Sino-Tibetan	Dhimalic	Dhimal	Nepal	King (2008)
Sino-Tibetan	Mahakiranti	Dolakha Newar	Nepal	Genetti (2007)
Sino-Tibetan	Qiangic	Qiang	China	LaPolla with Huang

				(2003), Huang (2008)
Sino-Tibetan	rGyalrongic	Japhug rGyalrong	China	Jacques (2016)
Sino-Tibetan	Tani	Apatani	India	Abraham (1985), Sun (2003)
Turkic	Turkic	Sakha	Russia	Ubrjatova (1982), Pakendorf, p.c.
Tungusic	Tungusic	Even	Russia	Malchukov (1995, 2008)
Tungusic	Tungusic	Nanai	Russia	personal field work
Uralic	Finnic	Finnish	Finland	personal knowledge
Uralic	Mari	Meadow Mari	Russia	Brykina & Aralova (2012)
Uralic	Mordvin	Erzya	Russia	Bartens (1999), Hamari & Aasmäe (2015)
Uralic	Permic	Beserman Udmurt	Russia	Brykina & Aralova (2012)
Uralic	Permic	Komi-Zyrian	Russia	Brykina & Aralova (2012)
Uralic	Saami	North Saami	Finland, Norway, Sweden	Ylikoski (2009)
Uralic	Samoyedic	Tundra Nenets	Russia	Nikolaeva (2014)
Uralic	Ugric	Hungarian	Hungary	Kenesei et al. (1998), Kiss (2015)
Uralic	Ugric	Northern Khanty	Russia	Nikolaeva (1999)
Yeniseian	Yeniseian	Ket	Russia	Nefedov (2012)
Yukaghir	Yukaghir	Kolyma Yukaghir	Russia	Nikolaeva (1997), Maslova (2003), Nagasaki (2014)

1b. Languages with little information on presumably participial forms

Family	Genus	Language	Country	Source
Afro-Asiatic	Beja	Beja	Sudan	Hudson (1974)
Afro-Asiatic	Biu-Mandara	Margi	Nigeria	Hoffmann (1963)
Afro-Asiatic	South Omotic	Dime	Ethiopia	Fleming (1990)
Afro-Asiatic	South Omotic	Aari	Ethiopia	Hayward (1990)

Atlantic-Congo	Nupoid	Gwari	Nigeria	Hyman & Magaji (1970)
Austronesian	Paiwan	Paiwan	Taiwan	Egli (1990)
Cariban	Cariban	Apalaí	Brazil	Koehn & Koehn (1986)
Central Sudanic	Bongo-Bagirmi	Mbay	Chad	Fortier (1971)
Central Sudanic	Kresh	Kresh	Sudan	Santandrea (1976)
Central Sudanic	Lendu	Ngiti	Democratic Republic of the Congo	Kutsch Lojenga (1994)
Central Sudanic	Mangbetu	Mangbetu	Democratic Republic of the Congo	Tucker & Bryan (1966)
Central Sudanic	Moru-Ma'di	Lugbara	Uganda	Tucker & Bryan (1966)
Cuitlatec	Cuitlatec	Cuitlatec	Mexico	Escalante (1962)
Dravidian	Central Dravidian	Kolami	India	Emeneau (1955)
Dravidian	Northern	Brahui	Pakistan	Andronov (1980), Elfenbein (1998)
Eastern Sudanic	Nubian	Dongolese Nubian	Sudan	Armbruster (1960)
Eastern Sudanic	Nyimang	Nyimang	Sudan	Stevenson (1981)
Eskimo-Aleut	Aleut	Aleut	United States	Bergsland (1997)
Gapun	Gapun	Taiap	Papua New Guinea	Kulick & Stroud (1992)
Huitotoan	Boran	Bora	Peru	Thiesen & Weber (2012)
Karok	Karok	Karok	United States	Bright (1957)
Kunama	Kunama	Kunama	Eritrea	Bender (1996), Böhm (1984)
Maban	Maban	Masalit	Sudan	Edgar (1989)
Mayan	Mayan	Mam	Guatemala	England (1983)
Misumalpan	Misumalpan	Miskito	Nicaragua	Salamanca (1988)
Mosetenan	Mosetenan	Mosetén	Bolivia	Sakel (2004)
Mura	Mura	Pirahã	Brazil	Everett (1986)
Natchez	Natchez	Natchez	United States	Kimball (2005)
Otomanguean	Pamean	Northern Pame	Mexico	Berthiaume

				(2012)
Palaihnihan	Palaihnihan	Achumawi	United States	De Angulo & Freeland (1930)
Puquina	Puquina	Puquina	Bolivia	Adelaar & van de Kerke (2009)
Saharan	Western Saharan	Kanuri	Nigeria	Lukas (1937)
Tarascan	Tarascan	Purépecha	Mexico	Foster (1969)
Tonkawa	Tonkawa	Tonkawa	United States	Wier, ms.
Wakashan	Northern Wakashan	Kwakw'ala	Canada	Boas (1947)

1c. Languages without participles

Family	Genus	Language	Country	Source
Abkhaz-Adyge	Abkhaz-Abaza	Abkhaz	Georgia	Hewitt (1979)
Afro-Asiatic	Biu-Mandara	Wandala	Cameroon	Frajzyngier (2012)
Afro-Asiatic	East Chadic	Kera	Chad	Ebert (1979)
Afro-Asiatic	Masa	Masa	Chad	Melis (1999)
Afro-Asiatic	Southern Cushitic	Burunge	Tanzania	Kiessling (1994)
Afro-Asiatic	Southern Cushitic	Iraqw	Tanzania	Mous (1992)
Afro-Asiatic	West Chadic	Miya	Nigeria	Schuh (1998)
Ainu	Ainu	Ainu	Japan	Bugaeva (forthcoming)
Algic	Wiyot	Wiyot	United States	Teeter (1964)
Algic	Yurok	Yurok	United States	Robins (1958)
Andoke	Andoke	Andoke	Colombia	Landaburu (1979)
Angan	Angan	Menya	Papua New Guinea	Whitehead (2004)
Arawakan	Bolivia-Parana	Baure	Bolivia	Danielsen (2010)
Arawakan	Central Arawakan	Waurá	Brazil	Derbyshire (1986)
Arawakan	Pre-Andine Arawakan	Ashéninka Perené	Peru	Mihas (2010)
Arawakan	Purus	Apurinã	Brazil	Facundes (2000)
Arawakan	Yanesha'	Yanesha'	Peru	Wise (1986)

Arawan	Arauan	Jarawara	Brazil	Dixon (2004b), Vogel (2009)
Arawan	Arauan	Paumarí	Brazil	Chapman & Derbyshire (1991)
Athapaskan-Eyak-Tlingit	Athapaskan	Chipewyan	Canada	Wilhelm (2014)
Athapaskan-Eyak-Tlingit	Tlingit	Tlingit	United States	Crippen (2012)
Atlantic-Congo	Adamawa	Samba Leko	Cameroon	Fabre (2003)
Atlantic-Congo	Bantoid	Makhuwa	Mozambique	van der Wal (2010)
Atlantic-Congo	Cross River	Ogbronuagum	Nigeria	Kari (2000)
Atlantic-Congo	Defoid	Yoruba	Nigeria	Ajíbóyè (2005)
Atlantic-Congo	Edoid	Degema	Nigeria	Kari (1997)
Atlantic-Congo	Gbaya-Manza-Ngbaka	Gbeya	Central African Republic	Samarin (1966)
Atlantic-Congo	Gur	Koromfe	Burkina Faso	Rennison (1997)
Atlantic-Congo	Idomoid	Igede	Nigeria	Bergman (1981)
Atlantic-Congo	Igboid	Igbo	Nigeria	Emenanjo (1987)
Atlantic-Congo	Kainji	Duka	Nigeria	Bendor-Samuel & Cressman (1973)
Atlantic-Congo	Kru	Vata	Côte d'Ivoire	Koopman (1984)
Atlantic-Congo	Kwa	Ewe	Ghana	Ameka (1991)
Atlantic-Congo	Kwa	Fongbe	Benin	Lefebvre & Brousseau (2002)
Atlantic-Congo	Mel	Kisi	Tanzania	Childs (1995)
Atlantic-Congo	Platoid	Fyem	Nigeria	Nettle (1998)
Atlantic-Congo	Ubangi	Sango	Central African Republic	Thornell (1997)
Austro-Asiatic	Aslian	Jahai	Malaysia	Burenhult (2005)

Austro-Asiatic	Bahnaric	Chrau	Vietnam	Thomas (1971)
Austro-Asiatic	Katuic	Pacoh	Vietnam	Jenny et al. (2014)
Austro-Asiatic	Khasian	Khasi	India	Jenny et al. (2014)
Austro-Asiatic	Khmer	Khmer	Cambodia	Jenny et al. (2014)
Austro-Asiatic	Monic	Mon	Myanmar	Jenny et al. (2014)
Austro-Asiatic	Nicobarese	Nancowry	India	Jenny et al. (2014)
Austro-Asiatic	Palaung-Khmuic	Palaung	Myanmar	Mak (2012)
Austro-Asiatic	Pearic	Kasong	Thailand	Sunee (2003)
Austro-Asiatic	Viet-Muong	Vietnamese	Vietnam	Jenny et al. (2014)
Austronesian	Atayalic	Mayrinax Atayal	Taiwan	Huang (2002)
Austronesian	Atayalic	Seediq	Taiwan	Tsukida (2005)
Austronesian	Barito	Malagasy	Madagascar	Keenan (1972)
Austronesian	Batanic	Ivatan	Philippines	Reid (1966)
Austronesian	Central Luzon	Kapampangan	Philippines	Mirikitani (1972)
Austronesian	Central Malayo-Polynesian	Kambera	Indonesia	Klamer (1998)
Austronesian	Chamorro	Chamorro	Guam	Topping (1973)
Austronesian	East Formosan	Amis	Taiwan	Wu (2006)
Austronesian	Greater Central Philippine	Tagalog	Philippines	Foley (1980)
Austronesian	Javanese	Javanese	Indonesia	Ogloblin (2005)
Austronesian	Lampungic	Lampung	Indonesia	Walker (1976)
Austronesian	Minahasan	Tondano	Indonesia	Sneddon (1975)
Austronesian	North Borneo	Tatana’	Malaysia	Dunn (1988)
Austronesian	Northern Luzon	Ilocano	Philippines	Foley (1980)
Austronesian	Northwest Sumatra-Barrier Islands	Karo Batak	Indonesia	Woollams (2005)
Austronesian	Oceanic	Fijian	Fiji	Foley (1980)
Austronesian	Oceanic	Tolai	Papua New Guinea	Foley (1980)

Austronesian	Palauan	Palauan	Palau	Josephs (1975), Foley (1980)
Austronesian	Rejang	Rejang	Indonesia	McGinn (1982)
Austronesian	Sama-Bajaw	Sama (Bajaw)	Philippines	Jun (2005)
Austronesian	Sangiric	Toratán	Indonesia	Himmelmann & Wolf (1999)
Austronesian	South Halmahera-West New Guinea	Taba	Indonesia	Bowden (2005)
Austronesian	South Sulawesi	Makassar	Indonesia	Jukes (2005)
Austronesian	Tsou	Tsou	Taiwan	Zeitoun (2005)
Austronesian	Western Plains Austronesian	Thao	Taiwan	Wang (2004)
Austronesian	Yapese	Yapese	Micronesia	Jensen (1977)
Bangime	Bangime	Bangime	Mali	Hantgan (2013)
Berta	Berta	Berta	Ethiopia	Triulzi et al. (1976)
Betoi	Betoi	Betoi	Colombia	Zamponi (2003)
Border	Border	Imonda	Papua New Guinea	Seiler (1985)
Bororoan	Bororoan	Bororo	Brazil	Cromwell (1979)
Bosavi	Bosavi	Edolo	Papua New Guinea	Gossner (1994)
Bunaban	Bunuban	Gooniyandi	Australia	McGregor (1990)
Chapacuran	Chapacura-Wanham	Wari’	Brazil	Everett & Kern (1997)
Chibchan	Arhuacic	Ika	Colombia	Frank (1985)
Chibchan	Guaymiic	Ngäbere	Panama	Alphonse (1956), Quesada Pacheco (2008)
Chibchan	Paya	Pech	Honduras	Holt (1999)
Chibchan	Rama	Rama	Nicaragua	Grinevald (1990)
Chibchan	Talamanca	Teribe	Panama	Quesada (2000)
Chimakuan	Chimakuan	Quileute	United States	Andrade

				(1933)
Chitimacha	Chitimacha	Chitimacha	United States	Granberry (2004)
Chonan	Chon Proper	Selknam	Argentina	Rojas-Berscia (2014)
Chukotko-Kamchatkan	Southern Chukotko-Kamchatkan	Itelmen	Russia	Volodin (1976)
Chumashan	Chumash	Ineseño Chumash	United States	Applegate (1972)
Dagan	Dagan	Daga	Papua New Guinea	Murane (1974)
East Bird's Head	East Bird's Head	Sougb	Papua New Guinea	Reesink (2002)
Eastern Daly	Eastern Daly	Matngele	Australia	Zandvoort (1999)
Eastern Jebel	Eastern Jebel	Ingessana	Sudan	Bender (1989)
Eastern Sudanic	Daju	Sila	Chad	Boyeldieu (2008)
Eastern Trans-Fly	Western Fly	Meryam Mir	Australia	Piper (1989)
Esselen	Esselen	Esselen	United States	Shaul (1995)
Furan	Fur	Fur	Sudan	Beaton (1968), Jakobi (1990)
Gaagudju	Gaagudju	Gaagudju	Australia	Harvey (2002)
Geelvink Bay	East Geelvink Bay	Bauzi	Indonesia	Briley (1997)
Goilalan	Goilalan	Kunimaipa	Papua New Guinea	Geary (1977)
Guahibo	Guahiban	Sikuani	Colombia	Queixalós (2011)
Guaicuruan	South Guaicuruan	Toba	Argentina	Carpio & Censabella (2012)
Gumuz	Gumuz	Gumuz	Ethiopia	Ahland (2012)
Gunwinyguan	Gunwinygic	Bininj Gun-Wok	Australia	Evans (2003)
Gunwinyguan	Ngalakan	Ngalakan	Australia	Merlan (1983)
Gunwinyguan	Ngandi	Ngandi	Australia	Heath (1978)
Gunwinyguan	Rembarnga	Rembarnga	Australia	McKay (1975)
Gunwinyguan	Warayic	Waray	Australia	Ford (1998)
Haida	Haida	Haida	Canada	Enrico (2003)
Hatam-Mansim	Hatam	Hatam	Indonesia	Reesink (1999)

Heiban	Heiban	Moro	Sudan	Black & Black (1971)
Hmong-Mien	Hmong-Mien	Hmong Njua	Laos	Purnell (1972)
Huavean	Huavean	San Francisco del Mar Huave	United States	Kim (2008)
Ijoid	Ijoid	Ijo	Nigeria	Williamson (1965)
Inanwatan	South Bird's Head	Inanwatan	Indonesia	de Vries (1996)
Iroquoian	Northern Iroquoian	Oneida	United States	Abbott (2000)
Iroquoian	Southern Iroquoian	Cherokee	United States	Lindsey & Scancarelli (1985)
Itonama	Itonama	Itonama	Bolivia	Crevels (2010)
Iwaidjan Proper	Iwaidjan	Maung	Australia	Singer (2006)
Japonic	Japanese	Japanese	Japan	Comrie (1998)
Jarawa-Onge	South Andamanese	Jarawa (in Andamans)	India	Kumar (2012)
Jarrakan	Jarrakan	Miriwung	Australia	Kofod (1978)
Katla-Tima	Katla-Tima	Katla	Nigeria	Tucker & Bryan (1966)
Katukinan	Katukinan	Canamarí	Brazil	Queixalós (2010)
Keresan	Keresan	Acoma	United States	Maring (1967)
Khoe-Kwadi	Khoe-Kwadi	Khoekhoe	Namibia	Hagman (1973, 1977)
Kiowa-Tanoan	Kiowa-Tanoan	Kiowa	United States	Watkins (1984)
Koman	Koman	Uduk	Sudan	Don Killian (p.c.)
Kresh-Aja	Kresh	Aja	South Sudan	Santandrea (1976)
Kuliak	Kuliak	Ik	Uganda	Serzisko (1989)
Kuot	Kuot	Kuot	Papua New Guinea	Lindström (2002)
Kutenai	Kutenai	Kutenai	Canada	Morgan (1991)
Kwaza	Kwaza	Kwaza	Brazil	van der Voort (2004)
Kwerbic	Kwerba	Kwerba	Indonesia	de Vries & de Vries (1997)

Kwomtari	Kwomtari	Nai	Papua New Guinea	Hamlin (1998)
Kxa	=|Hoan	=|Hoan	Botswana	Berthold (2012)
Kxa	Ju-Kung	Ju|'hoan	Namibia	Dickens (1991)
Lakes Plain	Lakes Plain	Iau	Indonesia	Bateman (1986)
Lavukaleve	Lavukaleve	Lavukaleve	Solomon Islands	Terrill (2003)
Left May	Left May	Ama	Papua New Guinea	Årsjö (1999)
Limilngan	Limilngan	Limilngan	Australia	Harvey (2001)
Mande	Western Mande	Mauka	Côte d'Ivoire	Ebermann (1986)
Mangarrayi-Maran	Mangarrayi	Mangarrayi	Australia	Merlan (1982)
Mangarrayi-Maran	Warndarang	Warndarang	Australia	Heath (1980)
Maningrida	Burarran	Burarra	Australia	Green (1987)
Maningrida	Nakkara	Nakkara	Australia	Eather (1990)
Maningrida	Ndjébbana	Ndjébbana	Australia	McKay (2000)
Mayan	Mayan	Jakaltek	Guatemala	Craig (1977)
Maybrat	North-Central Bird's Head	Maybrat	Indonesia	Dol (1999)
Mirndi	Jaminjungan	Jaminjung	Australia	Schultze-Berndt (2000)
Miwok-Costanoan	Costanoan	Mutsun	United States	Okrand (1977)
Mixe-Zoque	Mixe-Zoque	Chimalapa Zoque	Mexico	Johnson (2000)
Movima	Movima	Movima	Bolivia	Haude (2006)
Mpur	Kebar	Mpur	Indonesia	Odé (2002)
Muskogean	Muskogean	Choctaw	United States	Broadwell (2006)
Nambiquaran	Nambikuaran	Mamainde	Brazil	Eberhard (2009)
Ndu	Middle Sepik	Ambulas	Papua New Guinea	Wilson (1980)
Ndu	Middle Sepik	Iatmul	Papua New Guinea	Jendraschek (2012)
Nilotic	Nilotic	Lango	Uganda	Noonan (1992)

Nilotic	Nilotic	Turkana	Kenya	Dimmendaal (1983)
Nimboran	Nimboran	Nimboran	Indonesia	May (1997)
North Halmahera	North Halmaheran	Tidore	Indonesia	Van Staden (2000)
Northern Daly	Northern Daly	Malakmalak	Australia	Birk (1976)
Nuclear Torricelli	Combio-Arapesh	Arapesh	Papua New Guinea	Conrad & Wogiga (1991)
Nuclear Torricelli	Urim	Urim	Papua New Guinea	Wood (2012)
Nuclear Torricelli	Wapei-Palei	Olo	Papua New Guinea	Staley (2007)
Nuclear Trans New Guinea	Awju-Dumut	Korowai	Papua New Guinea	de Vries & van Enk (1997)
Nuclear Trans New Guinea	Binanderean	Suena	Papua New Guinea	Wilson (1974)
Nuclear Trans New Guinea	Chimbu	Golin	Papua New Guinea	Evans et al. (2005)
Nuclear Trans New Guinea	Dani	Lower Grand Valley Dani	Papua New Guinea	Bromley (1981)
Nuclear Trans New Guinea	Eastern Highlands	Gahuku	Papua New Guinea	Deibler (1976)
Nuclear Trans New Guinea	Finisterre-Huon	Nankina	Papua New Guinea	Spaulding & Spaulding (1994)
Nuclear Trans New Guinea	Mek	Yale (Kosarek)	Papua New Guinea	Heeschen (1992)
Nuclear Trans New Guinea	Ok	Mian	Papua New Guinea	Fedden (2011)
Nuclear Trans New Guinea	Wissel Lakes-Kemandoga	Ekari	Indonesia	Doble (1987)
Nuclear-Macro-Je	Jabutí	Jabutí	Brazil	Campbell (2012)
Nuclear-Macro-Je	Ge-Kaingang	Canela-Krahô	Brazil	Popjes & Popjes (1986)
Nuclear-Macro-Je	Karajá	Karajá	Brazil	Ribeiro (2012)
Nyulnyulan	Nyulnyulan	Bardi	Australia	Bowern (2012)
Nyulnyulan	Nyulnyulan	Warrwa	Australia	McGregor (1994)
Otomanguean	Chichimec	Chichimeca-Jonaz	Mexico	Lastra de

				Suárez (1984)
Otomanguean	Chinantecan	Comaltepec Chinantec	Mexico	Anderson (1989)
Otomanguean	Mixtecan	Chalcatongo Mixtec	Mexico	Macaulay (1996)
Otomanguean	Otomian	Mezquital Otomí	Mexico	Hess (1968)
Otomanguean	Popolocan	Eastern Popoloca	Mexico	Austin & Pickett (1974)
Otomanguean	Subtiaba-Tlapanec	Tlapanec	Mexico	Wichmann (2007)
Otomanguean	Zapotecan	Teotitlán del Valle Zapotec	Mexico	Kalivoda & Zyman (2015)
Pama-Nyungan	Western Pama-Nyungan	Djaru	Australia	Tsunoda (1981)
Pano-Tacanan	Tacanan	Cavineña	Bolivia	Guillaume (2008)
Peba-Yagua	Peba-Yaguan	Yagua	Peru	Payne & Payne (1990)
Pomoan	Pomoan	Kashaya	United States	Olsson (2010)
Puinave	Puinave	Puinave	Colombia	Girón Higuita (2008)
Sahaptian	Sahaptian	Nez Perce	United States	Deal (forthcoming)
Saharan	Eastern Saharan	Beria	Sudan	Jakobi & Crass (2004)
Salishan	Bella Coola	Bella Coola	Canada	Davis & Saunders (1978), Beck (1995)
Salishan	Central Salish	Lushootseed	United States	Hess & Hilbert (1980), Beck (1995)
Salishan	Central Salish	Saanich	Canada	Montler (1993)
Sandawe	Sandawe	Sandawe	Tanzania	Eaton (2008)
Senagi	Senagi	Menggwa Dla	Papua New Guinea	De Sousa (2006)
Sentani	Sentani	Sentani	Indonesia	Cowan (1965)
Sepik	Ram	Awtuw	Papua New Guinea	Feldman (1986)
Sepik	Sepik Hill	Alamblak	Papua New Guinea	Bruce (1984)
Sepik	Yellow River	Namia	Papua New Guinea	Feldpausch & Feldpausch

				(1992)
Sino-Tibetan	Bai	Yunnan Bai	China	Wiersma (2003)
Sino-Tibetan	Burmese-Lolo	Lahu	China	Matisoff (2003)
Sino-Tibetan	Chinese	Chinese	China	personal knowledge
Sino-Tibetan	Digaroan	Digaro	India	Devi Prasada Sastry (1984)
Sino-Tibetan	Karen	Geba Karen	Myanmar	Shee (2008)
Sino-Tibetan	Kuki-Chin	Bawm	India	Reichle (1981)
Sino-Tibetan	Nungish	Dulong	China	LaPolla (2003)
Siouan	Core Siouan	Lakhota	United States	Van Valin (1977)
Sko	Krisa	I'saka	Papua New Guinea	Donohue & San Roque (2002)
Sko	Warapu	Barupu	Papua New Guinea	Corris (2006)
Sko	Western Skou	Skou	Indonesia	Donohue (2004)
Solomons East Papuan	Bilua	Bilua	Solomon Islands	Bilua (2003)
Songhay	Songhay	Tadaksahak	Mali	Christiansen-Bolli (2010)
Southern Daly	Murrinh-Patha	Murrinh-Patha	Australia	Walsh (1976)
Southern Daly	Ngankikurungkurr	Ngankikurungkurr	Australia	Hoddinott & Kofod (1988)
Sulka	Sulka	Sulka	Papua New Guinea	Tharp (1996), Reesink (2005)
Surmic	Surmic	Murle	South Sudan	Arensen (1982)
Tai-Kadai	Kam-Tai	Thai	Thailand	Chingduang Yurayong (p.c.)
Teberan	Teberan	Folopa	Papua New Guinea	Anderson (2010)
Tequistlatecan	Tequistlatecan	Lowland Oaxaca Chontal	Mexico	O'Connor (2004)
Timor-Alor-Pantar	Greater Alor	Abui	Indonesia	Kratochvíl (2007)
Timor-Alor-Pantar	Makasae-Fataluku-Oirata	Makasae	East Timor	Huber (2008)

Tiwi	Tiwian	Tiwi	Australia	Osborne (1974)
Tor-Orya	Tor	Berik	Indonesia	Westrum (1988)
Totonacan	Totonacan	Upper Nexaca Totonac	Mexico	Beck (2004)
Trumai	Trumai	Trumai	Brazil	Guirardello (1997)
Tsimshian	Tsimshianic	Coast Tsimshian	Canada	Dunn (1979)
Tupian	Arikem	Karitiana	Brazil	Everett (2006)
Tupian	Monde	Gavião of Rondônia	Brazil	Moore (2012)
Tupian	Ramarama	Karo	Brazil	Gabas (1999)
Tupian	Tupari	Mekens	Brazil	Galucio (2001)
Tuu	Tu	!Xóõ	Botswana	Güldemann (2013)
Uru-Chipaya	Uru-Chipaya	Uru	Bolivia	Hannß (2011)
Uto-Aztecan	Aztecan	Huasteca Nahuatl	Mexico	Beller & Beller (1977)
Uto-Aztecan	Cahita	Yaqui	Mexico	Álvarez González (2012)
Wagiman	Wagiman	Wagiman	Australia	Cook (1987)
Wakashan	Southern Wakashan	Nuuchahnulth	Canada	Nakayama (2001)
Warao	Warao	Warao	Venezuela	Romero-Figueroa (1997)
West Bougainville	West Bougainville	Rotokas	Papua New Guinea	Robinson (2011)
Western Daly	Wagaydy	Emmi	Australia	Ford (1998)
Worrorran	Worrorran	Worora	Australia	Clendon (2001)
Yale	Yale	Nagatman	Papua New Guinea	Campbell & Campbell (1987)
Yangmanic	Yangmanic	Wardaman	Australia	Merlan (1994)
Yanomam	Yanomam	Sanuma	Venezuela	Borgman (1990)
Yele	Yele	Yelî Dnye	Papua New Guinea	Henderson (1995)
Yuchi	Yuchi	Yuchi	United States	Linn (2001)

Yuracare	Yuracare	Yuracare	Bolivia	van Gijn (2006, 2011)
Zamucoan	Zamucoan	Ayoreo	Paraguay	Bertinetto (2009)

Appendix 2a. Participial forms considered in the study: Relativization capacity

LANGUAGE	**FORM**	A	S	DO	IO	PP	ADV	POSS	Resump
Aguaruna	Subj Rel *-u*	yes	yes	no	no	no	no	no	no
Aguaruna	Non-Subj Rel *-mau*	no	no	yes	yes	yes	yes	?	no
Aguaruna	Neg Rel *-tʃau*	yes	yes	no	no	no	no	no	no
Albanian	Pfv Ptcp	no	yes	yes	no	no	no	no	no
Apatani	Nmz *-nɨ*	yes	yes (?)	yes	yes	no	no	no	no
Apatani	Ins Nmz *-nanɨ*	no	no	no	no	no	INS	no	no
Apsheron Tat	Ptcp *-de*/*-re*	yes	yes	yes	yes	yes	yes	yes	POSS (obl)
Armenian	Fut Ptcp *-ik'*	no	no (?)	yes	no	no	no	no	no
Armenian	Res Ptcp *-ac*	no	yes	yes	no	no	no	no	no
Armenian	Subj Ptcp *-oł*	yes (?)	yes	no	no	no	no	no	no
Barasano	Nmz	yes	yes	yes	?	?	some OBL	?	no
Basque	Pfv Ptcp *-tu*/*-i*	no	yes	yes	no	no	no	no	no
Beng	Nmz *-lɛ*	no	yes	yes	no	no	no	no	no
Beserman Udmurt	Prs Ptcp *-š'*	yes	yes	no	no	no	no	no	no
Beserman Udmurt	Pst Ptcp *-m*	yes	yes	yes	yes	yes	yes	no	no
Beserman Udmurt	Non-Pst Ptcp *-no*	no	no	yes	yes	yes	yes	no	no
Burushaski	Ptcp *-um*	yes	yes	yes	?	?	K&È	K&È	no
Chimariko	Nmz *-rop*/*-rot*/ *-lop*/*-lot*	yes	yes	yes	?	?	?	?	no
Coahuilteco	Sub *p-*/*pa-*	yes	yes	yes	yes	no	INS	no	DO (avail) >
Cofán	Ptcp *-'su*	yes	?	no	no	no	no	no	no
Dhimal	Nmz *-ka*	yes	yes	yes	yes	?	yes	?	no
Dolakha Newar	Nmz *-gu*/*-ku*/ *-u*	yes	yes	no	no	no	no	no	no
Dolakha Newar	Nmz-*e*/*-a*	no	no	yes	yes	?	yes	no	no
Erzya	Prs Ptcp *-i(c'a)*	yes	yes	no	no	no	no	no	no
Erzya	Pst Ptcp *-vt*	no	no	yes	no	no	no	no	no
Erzya	Pfv Ptcp *-z'*	no	yes	yes	no	no	no	no	no
Even	NonFut Ptcp	yes	yes	yes	yes	yes	yes	yes	POSS (obl)
Even	Prf Ptcp *-ča*/ *-če*	yes	yes	yes	yes	yes	yes	yes	POSS (obl)
Even	Pst Ptcp *-daŋ*/ *-deŋ*	yes (?)	yes (?)	yes	yes	yes	yes	yes	POSS (obl)
Even	Necess. Ptcp *-nna*/*-nne*	yes	yes	yes	yes	yes	yes	yes	POSS (obl)
Even	Hypoth.Ptcp *-d'iŋa*/ *-d'iŋe*	yes	yes	yes	yes	yes	yes	yes	POSS (obl)
Finnish	Prs Act Ptcp *-va*	yes	yes	no	no	no	no	no	no
Finnish	Pst Act Ptcp *-nut*	yes	yes	no	no	no	no	no	no
Finnish	Prs Pass Ptcp *-tava*	no	no	yes	no	no	no	no	no
Finnish	Pst Pass Ptcp *-tu*	no	no	yes	no	no	no	no	no
Finnish	Ag. Ptcp *-ma*	no	no	yes	no	no	no	no	no
Finnish	Neg Ptcp *-maton*	yes	yes	yes	no	no	no	no	no
Fula	Ptcp	yes	yes	no	no	no	no	no	no
Garo	Nmz *-gipa*	yes	yes	yes	yes	?	yes	no (?)	no

Garrwa	Char Nmz *-warr*	yes	yes	no	no	no	no	no	no
Georgian	Act Ptcp *m-V(-el)*	yes	yes	no	no	no	no	no	no
Georgian	Fut Ptcp *sa-V(-el)*	no	no	yes	no	no	no	no	no
Georgian	Pst Ptcp *-ul/-il/ m-V-ar*	no	yes	yes	no	no	no	no	no
Georgian	Priv. Ptcp *u-V(-el)*	no	yes	yes	no	no	no	no	no
German	Prs Ptcp (Ptcp I) *-end*	yes	yes	no	no	no	no	no	no
German	Pst Ptcp (Ptcp II)	no	yes	yes	no	no	no	no	no
Hinuq	General Ptcp *-o goła*	yes	yes	yes	yes	yes	yes	yes	pragm
Hinuq	Pst Ptcp *-(y)oru*	yes	yes	yes	yes	yes	yes	yes	pragm
Hinuq	Hab Ptcp *-ƛ'os*	yes	yes	yes	yes	yes	yes	yes	pragm
Hinuq	Res Ptcp *-s*	(yes)	yes	yes	(yes)	(yes)	(yes)	(yes)	pragm
Hinuq	Loc Ptcp *-a*	no	no	no	no	no	LOC	no	pragm
Hopi	Nmz *-qa*	yes	yes	yes	yes	yes	yes	yes	S/A (avail) > PP (obl) > POSS
Hungarian	Act Ptcp *-ó*	yes	yes	no	no	no	no	no	No
Hungarian	Pass Ptcp *-ott*	(colloquial)	yes	yes	no	no	no	no	No
Hup	Dep *-Vp*	yes	yes	yes	yes	yes	yes	no	no
Imbabura Quechua	Fut *-na*	yes	yes	yes	yes	yes	yes	no	no
Imbabura Quechua	Pst/Non-Subj Pst *-shka*	yes (if pre)	yes (if pre)	yes	yes	yes	yes	no	no
Imbabura Quechua	Prs/Subj Prs *-j*	yes	yes	yes (if pre)	yes (if pre)	yes (if pre)	yes (if pre)	no	no
Ingush	Simult. Cvb	yes	yes	yes	yes	yes	yes	inal	no
Ingush	Pst Ptcp	yes	yes	yes	yes	yes	yes	inal	no
Ingush	Prs Ptcp	yes	yes	yes	yes	yes	yes	inal	no
Irish	Pst Ptcp *-tha/ -the*	?	yes	yes	no	no	no	no	no
Italian	Pst Ptcp *-t*	no	yes	yes	no	no	no	no	no
Japhug rGyalrong	S/A Ptcp *kɯ-*	yes	yes	no	no	no	no	poss of S/A	POSS (obl)
Japhug rGyalrong	P Ptcp *kɤ-*	no	no	yes	when =P	no	no	poss of P	POSS (obl)
Japhug rGyalrong	Obl Ptcp *sɤ-*	no	no	no	yes	yes	yes	no	no
Kalmyk	Res Ptcp *-ata*	no	no	yes	no	no	no	no	no
Kalmyk	Hab Ptcp *-dəg*	yes	yes	yes	yes	yes	yes	yes	PP (poss) > POSS (obl)
Kalmyk	Pfv Ptcp *-sən*	yes	yes	yes	yes	yes	yes	yes	PP (poss) > POSS (obl)
Kalmyk	Fut Ptcp *-xə*	yes	yes	yes	yes	yes	yes	yes	PP (poss) > POSS (obl)
Kamaiurá	Attr Nmz *-ama'e*	no	yes	no	no	no	no	poss of S	POSS (obl)
Kamaiurá	Neg Attr Nmz *-uma'e*	no	yes	no	no	no	no	poss of S	POSS (obl)
Kamaiurá	Pat. Nmz *-ipyt*	no	no	yes	no	no	no	poss of P	POSS (obl)
Kamaiurá	Obj Nmz *-emi*	no	no	yes	no	no	no	poss of	POSS

								P	(obl)
Kamaiurá	Nmz *-tap*	no	no	no	yes	yes	yes	poss of OBL	POSS (obl)
Kamaiurá	Ag. Nmz *-tat*	yes	no	no	no	no	no	poss of A	POSS (obl)
Kambaata	Affirm. Rel (tonal)	yes	yes	yes	yes	?	yes	yes	DO (avail) > POSS (obl)
Kambaata	Neg Rel *-umb*	yes	yes	yes	yes	?	yes	yes	DO (avail) > POSS (obl)
Kayardild	Res Nmz *-thirri-n-*	no	?	yes	no	no	no	no	no
Kayardild	Conseq. Nmz *-n-ngarrba*	yes	yes	ext	no	no	ext	no	no
Ket	AN	yes	yes	yes	yes	yes	yes	no	no
Kharia	Masdar (redupl.)	yes	yes	yes	?	?	yes	no	no
Kobon	Nmz *-eb*/*-ep*	yes	yes	no	no	no	no	no	no
Kokama-Kokamilla	Nmz *-n*	no	yes	yes	no	no	no	no	no
Kokama-Kokamilla	Nmz *-tara*	yes	no	no	no	no	no	no	no
Kokama-Kokamilla	Nmz *-tupa*	no	no	no	(yes)	no	LOC	no	no
Kolyma Yukaghir	Act Attr *-je*	yes	yes	yes	yes	no	no	poss of S	POSS (obl)
Kolyma Yukaghir	AN *-l*	yes	(yes)	yes	yes	?	yes	poss of S	POSS (obl)
Kolyma Yukaghir	Res Nominal *-ōl*	no	no	yes	no	no	LOC	no	no
Kolyma Yukaghir	Pass Attr *-me*	no	no	yes	yes	?	yes	no	no
Komi-Zyrian	Act Ptcp *-iš'*	yes	yes	no	no	no	no	no	no
Komi-Zyrian	Pst Ptcp *-an*/ *-ana*	rare	rare	yes	yes	?	yes	?	no
Komi-Zyrian	Pfv Ptcp *-əm*/ *-əma*	yes	yes	yes	?	?	yes	poss of P	no
Komi-Zyrian	Neg Ptcp *-təm*	yes	yes	yes	yes	?	yes	?	no
Koorete	Ipfv Sub *-e*	yes	?	yes	?	?	?	?	no
Koorete	Pfv Sub Subj *-a*	yes	yes	no	no	no	no	no	no
Koorete	Pefv Sub Non-Subj *-o*	no	no	yes	?	?	?	?	no
Korean	Prs Rel Form *-nin*	yes	yes	yes	yes	yes	yes	yes	POSS (avail)
Korean	Pst/Prs Rel Form *-n*	yes	yes	yes	yes	yes	yes	yes	POSS (avail)
Korean	Fut/Presump. Rel *-l*	yes	yes	yes	yes	yes	yes	yes	POSS (avail)
Koryak	Fut Nmz *-jo-lqəl*	no	yes	yes	no	no	no	no	no
Koryak	Non-Fut Nmz *-lq*	no	yes	yes	no	no	no	no	no
Krongo	Conn *ŋ-*	?	yes	yes	yes	yes	yes	?	DO (obl) >
Lezgian	Ptcp *-j*	yes	yes	yes	yes	(yes)	yes	inal	pragm
Lithuanian	Prs Act Ptcp	yes	yes	no	no	no	no	no	no
Lithuanian	Pret. Act Ptcp	yes	yes	no	no	no	no	no	no
Lithuanian	Hab Pst Act Ptcp	yes	yes	no	no	no	no	no	no
Lithuanian	Fut Act Ptcp	yes	yes	no	no	no	no	no	no
Lithuanian	Prs Pass Ptcp	no	no	yes	no	no	no	no	no
Lithuanian	Pret. Pass Ptcp	no	no	yes	no	no	no	no	no
Lithuanian	Fut Pass Ptcp	no	no	yes	no	no	no	no	no
Luiseño	Nmz	?	?	yes	?	?	?	?	no
Maba	Ptcp *n-*	yes	yes	no	no	no	no	no	no
Ma'di	Obl Rel *-dʒɔ́*	no	no	no	no	INS	PURP	yes	avail

Ma'di	Obj Rel *-lɛ́*	no	no	yes	no	no	no	yes	POSS (obl)
Ma'di	Subj Rel *-rɛ̄* (SG) & *-bá* (PL)	yes	yes	no	no	COM	no	yes	comit., POSS (obl)
Malayalam	Ptcp *-a*	yes	yes	yes	yes	yes	yes	inal	no
Malayalam	Neg Ptcp *-aatta*	yes	yes	yes	yes	yes	yes	inal	no
Manange	Nmz *-pʌ*	yes	yes	yes	?	?	yes	?	no
Mapudungun	Act Ptcp *-lu*	yes	yes	no	no	no	no	no	no
Mapudungun	Pass Ptcp *-el*	no	no	yes	=DO	no	no	no	no
Marathi	Ptcps (compl. system)	yes	yes	yes	yes	no	yes	no	no
Maricopa	Subj Rel Form *kw-*	yes	yes	no	no	no	no	yes	no
Maricopa	Non-Subj Nmz	no	no	yes	yes	?	yes	?	no
Martuthunira	Prs Rel *-nyila*	yes	yes	no	no	no	no	no	no
Matsés	A Nmz *-quid*	yes	yes (rec past)	no	no	no	no	no	no
Matsés	P Nmz *-aid*	no	yes (rec past)	yes (not fut)	yes (not fut)	yes (not fut)	yes (not fut & INS pres)	no	no
Matsés	Ins Nmz *-te*/ *-tequid*	no	no	yes (fut)	yes (fut)	yes (fut)	INS (not rec past)	no	no
Matsés	TAM-Coding Particip. Nmzs	yes	yes	yes	yes	yes	yes	no	no
Matsés	Neg Hab Subj Nmz *-esa*	yes	yes	no	no	no	no	no	no
Matsés	Neg Hab P/INS Nmz *-temaid*	no	no	yes	no	no	INS	no	no
Matsés	Neg Pfv P/INS Nmz *-acmaid*	no	no	yes	no	no	INS	no	no
Meadow Mari	Act Ptcp *-še*	yes	yes	no	no	no	no	no	no
Meadow Mari	Fut Ptcp *-šaš*	yes	yes	yes	yes	yes	yes	yes	POSS (obl)
Meadow Mari	Pass Ptcp *-me*	no	no	yes	yes	yes	yes	yes	POSS (obl)
Meadow Mari	Neg ptcp *-dəme*	yes	yes	yes	yes	yes	yes	yes	POSS (obl)
Mẽbengokre	Nmz	yes	yes	yes	yes	yes	yes	yes	avail (if disloc.)
Middle Egyptian	Subj Ptcp	yes	yes	no	no	no	no	no	no
Middle Egyptian	Non-Subj Ptcp	no	no	yes	(yes)	yes	no	no	IO (obl) >
Mochica	Stat. Ptcp *-d-o*	no	yes	yes	no	no	no	no	NA
Modern Greek	Pst Pass Ptcp *-ménos*	no	yes	yes	no	no	no	no	no
Modern Standard Arabic	Act Ptcp	yes	yes	no	no	no	no	no	non-S/A (obl) >
Modern Standard Arabic	Pass Ptcp	no	no	yes	no	no	no	no	non-P (obl) >
Motuna	Ptcp -(*wa*)*h*	yes	yes	yes	?	?	yes	yes	POSS (?)
Muna	Act Ptcp (circumf.)	yes	yes	no	no	no	no	yes	no (POSS?)
Muna	Loc Nmz (*ka-…-ha*)	no	no	no	no	LOC	LOC	no	no
Muna	Nmz *ka-*	no	no	yes	no	no	no	no	no
Muna	Pass Ptcp *ni-*	no	no	yes	(ext)	no	no	no	no
Nanai	Prs Ptcp	yes	yes	yes	yes	yes	yes	yes	POSS (obl)
Nanai	Pst Ptcp	yes	yes	yes	yes	yes	yes	yes	POSS

									(obl)
Nanga	Pfv Ptcp *-sɛ̀*	yes	yes	yes	yes	yes	yes	yes	POSS (ext.h.)
Nanga	ImPfv Ptcp *-mì*	yes	yes	yes	yes	yes	yes	yes	POSS (ext.h.)
Nevome	Nmz *-cama*	yes (?)	yes	?	?	?	?	?	no
Nevome	Fut Res Nmz *-cugai*	?	yes (?)	yes	?	?	?	?	no
Nevome	Prs Loc Nmz *-cami*	no	no	no	no	no	LOC	no	no
Nevome	Hab Loc Nmz *-carhami*	no	no	no	no	no	LOC	no	no
Nevome	Pst Loc Nmz *-parhami*	no	no	no	no	no	LOC	no	no
Nevome	Fut Loc Nmz *-aicami*	no	no	no	no	no	LOC	no	no
Nias	Rel Pass *ni-*	no	no	yes	(yes)	(DAT)	no	no	no
Nivkh	Ptcp	yes	yes	yes	yes	yes	yes	no (?)	no
North Saami	Ag. Pass Ptcp *-n*	no	no	yes	no	no	no	no	no
North Saami	Prs Act Ptcp *-i/(jead)dji*	yes	yes	no	no	no	no	no	no
North Saami	Pst Act Ptcp *-n*	yes	yes	no	no	no	no	no	no
North Saami	Neg Ptcp *-keahtes*	yes	yes	yes	no	no	no	no	no
Northern Khanty	Non-Pst Ptcp *-ti*	yes	yes	yes	yes	yes	yes	yes	POSS (obl)
Northern Khanty	Pst Ptcp *-m*	yes	yes	yes	yes	yes	yes	yes	POSS (obl)
Northern Khanty	Neg Ptcp *-li*	no	yes	yes	no	no	no	no	no
Panare	Pst Ptcp *-sa'*	no	yes	yes	no	no	no	no	no
Panare	Ag. Ptcp *-jpo*	yes	no (?)	no	no	no	no	no	no
Pitta Pitta	*-ka* (diachr. Pst)	yes	yes	yes	yes	NA	yes	yes	no
Qiang	Ag. Nmz *-m*	yes	yes	no (?)	yes	?	?	yes	IO (avail), pragm
Qiang	Insl Nmz *-s*	no	no	no	no	no	INS	no	no (?)
Rif Berber	Act Ptcp	yes	yes	no	no	no	no	no	no
Russian	Prs Act Ptcp *-ušč/-ašč*	yes	yes	no	no	no	no	no	no
Russian	Pst Act Ptcp *-vš*	yes	yes	no	no	no	no	no	no
Russian	Prs Pass Ptcp *-m*	no	no	yes	no	no	no	no	no
Russian	Pst Pass Ptcp *-n/-t*	no	no	yes	no	no	no	no	no
Sakha	Pst Ptcp *-bït*	yes	yes	yes	yes	?	yes	yes	POSS (obl)
Sakha	Neg Pst Ptcp *-bataχ*	yes	yes	yes	yes	?	yes	yes	POSS (obl)
Sakha	Prs Ptcp *-ar/-ɨ̄r*	yes	yes	yes	yes	?	yes	yes	POSS (obl)
Sakha	Neg Prs Ptcp *-bat*	yes	yes	yes	yes	?	yes	yes	POSS (obl)
Sakha	Fut Ptcp *-ïaχ*	yes	yes	yes	yes	?	yes	yes	POSS (obl)
Sakha	Neg Fut Ptcp *-(ï)mïaχ*	yes	yes	yes	yes	?	yes	yes	POSS (obl)

Santiam Kalapuya	Inf *gi-*	yes	yes (?)	?	?	no	no	?	no
Savosavo	Rel *-tu*	yes	yes	yes	yes	yes	yes	yes	DO (avail) > POSS (obl)
Seri	Subj Nmz	yes	yes	no	no	no	no	poss of S/A	no
Seri	Obj Nmz	no	no	yes	=DO	no	no	poss of P	no
Seri	Obl Nmz	no	no	no	no	yes	yes	poss of OBL	no
Sheko	Rel Verb Form *-ə̀b* (*-ə̀be* for Fem Sg)	yes	yes	yes	yes	yes	yes	yes	DO (avail) > POSS (obl)
Tamil	Ptcp *-a*	yes	yes	yes	yes	yes	yes	no	no
Tamil	Fut Ptcp *-um*	yes	yes	yes	yes	yes	yes	no	no
Tanti Dargwa	Pret. Ptcp	yes	yes	yes	yes	yes	yes	yes (?)	pragm
Tanti Dargwa	Prs Ptcp	yes	yes	yes	yes	yes	yes	yes (?)	pragm
Tanti Dargwa	Pot. Ptcp *-an*	yes	yes	yes	yes	yes	yes	yes (?)	pragm
Tariana	Fut Ptcp *ka-V-pena*	yes	yes	no	no	no	no	no	no
Tariana	Nmz *-mi*	no	no	yes	?	no	LOC	no	no
Tariana	Nmz *-nipe*	no	no	yes	no	no	no	no	no
Tariana	Pst Ptcp *ka-V-kari* (MASC)/ *ka-V-karu* (FEM)/ *ka-V-kani* (PL)	yes	yes	no	no	no	no	no	no
Tariana	Ptcp *ka-*	yes	yes	no	no	no	no	no	no
Tarma Quechua	Ag. Nmz *-q*	yes	yes	no	no	no	no	no	no
Tarma Quechua	Fut Nmz *-na*	no	no	yes	yes	?	yes	?	no
Tarma Quechua	Rel Nmz *-nqa*	no	no	yes	yes	?	yes	?	no
Tarma Quechua	Stat. Nmz *-sha*	no	yes	yes	no	no	no	no	no
Telugu	Pst Ptcp *-ina*	yes	yes	yes	yes	some	some	?	no
Telugu	Fut-Hab Ptcp *-ee*	yes	yes	yes	yes	some	some	?	no
Telugu	Dur. Ptcp *-tunna*	yes	yes	yes	yes	some	some	?	no
Telugu	Neg Ptcp *-ani*	yes	yes	yes	yes	some	some	?	no
Tsafiki	Ipfv Ptcp *-min*	yes	yes	rare	no	no	no	no	no
Tsafiki	Pfv Ptcp *-ka*	rare	yes	yes	no	no	no	no	no
Tsafiki	Nmz *-nun*	no	no	no	no	INS	LOC	no	no
Tundra Nenets	Ipfv Ptcp *-n(ʹa)/t(ʹa)*	yes	yes	yes	no	no	rare	ext	no
Tundra Nenets	Pfv Ptcp *-miə/ -me*	yes	yes	yes	no	no	rare	ext	no
Tundra Nenets	Fut Ptcp *-mənta*	yes	yes	yes	no	no	rare	ext	no
Tundra Nenets	Neg Ptcp *-mədawe(y(ə))*								no
Tundra Nenets	Pfv AN	no	no	no	yes	yes	yes	ext	no
Tundra Nenets	Ipfv AN	no	no	no	yes	yes	yes	ext	no
Tundra Nenets	Mod. Cvb	no	no	no	yes	yes	yes	ext	no
Tümpisa Shoshone	Prs Ptcp *-tün*	yes	yes	no	no	no	no	no	no
Tümpisa Shoshone	Inf *-nna*	no	no	yes	yes	yes	yes	no	PP (obl)
Tümpisa Shoshone	Pst Ptcp *-ppüh*	no	no	yes	yes	yes	yes	no	PP (obl)
Urarina	Ag. Nmz *-era*	yes	no	no	no	no	no	no	no
Urarina	Abs. Nmz *-i*	no	yes	yes	no	no	no	no	no
Wambaya	Ag. Nmz	yes	yes	no	no	no	no	no	no
Wan	Attr Nmz *-ŋ*	no	no	yes	yes	yes	yes	no	no
Wappo	Dep	yes	yes	yes	yes	?	?	?	no

Warihio	Loc Nmz *-ači*	no	no	no	no	no	LOC	no	no
Warihio	P/T/ R/INS Nmz *-a*	no	no	yes	yes	no	INS	no	no
Warihio	Subj Nmz *-me*	yes	yes	no	no	no	no	no	no
West Greenlandic	Act Ptcp *-soq*	ext.	yes	no	no	no	no	ext	no
West Greenlandic	Pass Ptcp *-saq*	no	no	yes	no	no	ext	ext	no
Wikchamni	Neutr. Ag. {*-ač̓/*} or {*-ič̓/*}	yes	yes	no	no	no	no	no	none
Wikchamni	Pass Verb. Noun {*-ʔaṅa/*} or {*-ʔ...aṅa/*}	no	no	yes	no	no	no	no	none
Wolio	Pass Ptcp *i-*	no	no	yes	no	no	no	no	no
Wolio	Act Ptcp *mo-*	yes (?)	yes	no	no	no	no	no	no
Yimas	Non-Fin. *-ru*	yes	yes	no	no	no	no	no	no
Yimas	Neg Non-Fin. *-kakan*	yes	yes	yes	no	no	no	no	no

Appendix 2b. Participial forms considered in the study: Position and desententialization

LANG.	**FORM**	**POS.**	SUBJ	OBJ	ADV	Neg	TAM comments	Verbal and nominal agreement
Aguaruna	Subj Rel *-u*	pre/ post	none	reg	reg	spec	the marker appears on aspectualized stems	lack of obligatory person marking, apposition to the modified noun
Aguaruna	Non-Subj Rel *-mau*	pre/ post/ int.h.	reg	reg	reg	none	the marker appears on aspectualized stems	lack of obligatory person marking, apposition to the modified noun
Aguaruna	Neg Rel *-t/au*	pre/ post	none	reg	reg	spec	can appear on either aspectualized or unmarked stems	lack of obligatory person marking, apposition to the modified noun
Albanian	Pfv Ptcp	post	prep. *nga/ prej*	none	reg	reg	perfective meaning, no other TAM marking available	prepositive article demonstrates agreement with the head noun
Apatani	Nmz *-nɨ*	pre	GEN (poss)	reg/ GEN (?)	reg (?)	NA	NA	no agreement with the head noun
Apatani	Ins Nmz *-nanɨ*	pre	GEN	reg (?)	reg (?)	NA	NA	no agreement with the head noun
Apsheron Tat	Ptcp *-de/-re*	pre	reg (+attr. marker)	reg	reg	NA	no additional marking; any factual interpretation possible	no agreement with the head noun
Armenian	Fut Ptcp *-ik'*	pre	DAT/ poss	none	reg (?)	NA	future, debitive meaning	no agreement with the head noun
Armenian	Res Ptcp *-ac*	pre	DAT/ poss	none	reg (?)	NA	resultative meaning	no agreement with the head noun
Armenian	Subj Ptcp *-oł*	pre	none	reg (?)	reg (?)	NA	simultaneous or habitual meaning	no agreement with the head noun
Barasano	Nmz	post/ pre	reg	reg	reg	reg	tense either expressed with a separate suffix or included in the nominalizer	one of the set of suffixes depending on certain properties of the head (gender, number, etc.)
Basque	Pfv Ptcp *-tu/-i*	post/ (pre)	reg	none	reg (?)	NA	perfective/ resultative meaning	no agreement with the head noun
Beng	Nmz *-lɛ*	int.h.	imposs (?)	none	NA	NA	resultative	no agreement with the head noun
Beserman Udmurt	Prs Ptcp *-š'*	pre/ (post)	none	reg	reg	adj neg *-tem*	no additional TAM markers, mostly simultaneous to the main clause situation, habitual with negation	no agreement with the head noun
Beserman Udmurt	Pst Ptcp *-m*	pre/ (post)	poss/ GEN/ NOM/ INS	reg	reg	spec *-te*	no additional TAM markers, perfective meaning, preceding the situation in the main clause, no result in the present with negation	no agreement with the head noun
Beserman Udmurt	Non-Pst Ptcp *-no*	pre/ (post)	GEN (?)	reg	reg	adj neg *-tem*	non-past (present or future) or habitual, rarely	no agreement with the head noun

							debitive	
Burushaski	Ptcp *-um*	pre	reg (?)	reg (?)	reg (?)	NA	perfective Ø or imperfective marker	agreement in number (apparently not case) with the modified noun
Chimariko	Nmz *-rop*/*-rot*/ *-lop*/*-lot*	int.h.	reg	reg	reg	NA	no TAM markers, which are obligatory in independent sentences	no agreement with the head noun
Coahuilteco	Sub *p-* /*pa-*	post	poss (intr.)	reg	reg	NA	no tense markers and post-verbal auxiliaries	no agreement with the head noun
Cofán	Ptcp *-'su*	pre	none	reg	reg (?)	NA	no TAM at all (there is little in the language in general)	no agreement with the head noun
Dhimal	Nmz *-ka*	pre	poss	reg (?)	reg (?)	reg	NA	no agreement with the head noun
Dolakha Newar	Nmz *-gu*/*-ku*/ *-u*	pre	none	reg	reg	reg *ma-*	NA	no agreement with the head noun
Dolakha Newar	Nmz-*e*/*-a*	pre	reg	reg	reg	reg *ma-*	NA	no agreement with the head noun
Erzya	Prs Ptcp *-i(c´a)*	pre	none	reg	reg	reg *a*/ *avol'*	simultaneous/habitual meaning	generally no agreement with the head noun
Erzya	Pst Ptcp *-vt*	pre	GEN	none	reg (oblig. if no agent)	*apak* + con-neg	preceding the situation in the main clause	generally no agreement with the head noun
Erzya	Pfv Ptcp *-z´*	pre	GEN	none	reg	*apak* + con-neg	preceding the situation in the main clause	generally no agreement with the head noun
Even	NonFut Ptcp	pre/ int.h.	poss	reg	reg	NA	anteriority if derived from telic verbs and simultaneity if derived from atelic	number and case (?) agreement with the head noun
Even	Prf Ptcp *-ča*/ *-če*	pre/ int.h.	poss	reg	reg	NA	perfective meaning (anteriority)	number and case (?) agreement with the head noun
Even	Pst Ptcp *-daŋ*/ *-deŋ*	pre/ int.h.	poss	reg	reg	NA	relative past tense	number and case (?) agreement with the head noun
Even	Necess. Ptcp *-nna* /*-nne*	pre/ int.h.	poss	reg	reg	NA	necessity	number and case (?) agreement with the head noun
Even	Hypoth.Ptcp *-d'iŋa*/ *-d'iŋe*	pre/ int.h.	poss	reg	reg	NA	potentiality	number and case (?) agreement with the head noun
Finnish	Prs Act Ptcp *-va*	pre	none	reg	reg	spec	reg tense system, reduced aspect and modality	case and number agreement with the head noun
Finnish	Pst Act Ptcp *-nut*	pre	none	reg	reg	spec	reg tense system, reduced aspect and modality	case and number agreement with the head noun
Finnish	Prs Pass Ptcp *-tava*	pre	imposs	none	reg	spec	reg tense system, reduced aspect and modality	case and number agreement with the head noun
Finnish	Pst Pass Ptcp *-tu*	pre	imposs	none	reg	spec	reg tense system, reduced aspect and modality	case and number agreement with the head noun
Finnish	Ag. Ptcp *-ma*	pre	poss	none	reg	spec	no TAM distinctions;	case and number agreement with the

							predominantly past/perfective	head noun
Finnish	Neg Ptcp *-maton*	pre	poss	reg (PART)	reg	spec	no TAM distinctions	case and number agreement with the head noun
Fula	Ptcp	post	none	reg	reg	none	NA	agreement in class with the head noun; passive participles mentioned, but too little information is available
Garo	Nmz *-gipa*	pre	GEN (poss)	reg	reg	nom neg *-gija*	some aspectual marking possible	no agreement with the head noun
Garrwa	Char Nmz *-warr*	post	none	DAT	NA	NA	no TAM marking; generic or habitual interpretation most likely	no agreement with the head noun
Georgian	Act Ptcp *m-V(-el)*	pre/ (post)	none	GEN	DAT > GEN	none	any time reference	nominal agreement with the modified noun
Georgian	Fut Ptcp *sa-V(-el)*	pre/ (post)	post. *mier*/ GEN (?)	none	reg (?)	spec	future/debitive meaning	nominal agreement with the modified noun
Georgian	Pst Ptcp *-ul/-il/ m-V-ar*	pre/ (post)	post. mier/ GEN (?)	none	reg (?)	spec	perfective meaning	nominal agreement with the modified noun
Georgian	Priv. Ptcp *u-V(-el)*	pre (post poss)	NA	none	reg (?)	spec	negative perfective or potential (non-V-able)	nominal agreement with the modified noun
German	Prs Ptcp (Ptcp I) *-end*	pre	none	reg	reg	reg	simultaneous/habitual meaning	the ending depends on case, number and gender of the head noun
German	Pst Ptcp (Ptcp II)	pre	prep. *von*	none	reg	reg	resultative meaning	the ending depends on case, number and gender of the head noun
Hinuq	General Ptcp *-o goła*	pre (rarely post)	reg	reg	reg	reg (rare)	past or present time reference, depending on the context	gender agreement with the head noun in S/P relativization
Hinuq	Pst Ptcp -(*y*)*oru*	pre (rarely post)	reg	reg	reg	reg (rare)	relative past time reference	gender agreement with the head noun in S/P relativization
Hinuq	Hab Ptcp *-ƛ'os*	pre (rarely post)	reg	reg	reg (rare)	reg (rare)	relative present and future time reference; habitual aspect	gender agreement with the head noun in S/P relativization
Hinuq	Res Ptcp *-s*	pre (rarely post)	reg (rare)	reg	reg (rare)	reg (rare)	resultative; relative past time reference	gender agreement with the head noun in S/P relativization
Hinuq	Loc Ptcp *-a*	pre (rarely post)	reg	reg	reg	reg (rare)	time reference depending on the context	no agreement with the head noun
Hopi	Nmz *-qa*	post	reg	reg	reg	NA	NA	case marking on the nominalization depends on whether the RC and the main clause share subject, and on the role of the head noun in the RC and in the main clause
Hungarian	Act Ptcp *-ó*	pre	none	reg	reg	reg	simultaneous or habitual meaning	no agreement with the head noun
Hungarian	Pass Ptcp *-ott*	pre	postp. *által*	none	reg	reg	perfective meaning	no agreement with the head noun

Hup	Dep *-Vp*	pre	reg	reg	reg	reg	tense and aspect marking possible (Inner Suffixes)	all the nominal marking on the head noun, since RCs are pre (nominal compound construction)
Imbabura Quechua	Fut *-na*	pre	reg	reg/ incorp	reg	none	some aspectual marking possible (separate suffixes)	no subject agreement; case agreement with the head noun if the RC is postposed
Imbabura Quechua	Pst/Non-Subj Pst *-shka*	pre/ int.h.	reg	reg/ incorp	reg	none	some aspectual marking possible (separate suffixes)	no subject agreement; case agreement with the head noun if the RC is postposed
Imbabura Quechua	Prs/Subj Prs *-j*	pre/ int.h.	reg	reg/ incorp	reg	none	some aspectual marking possible (separate suffixes)	no subject agreement; case agreement with the head noun if the RC is postposed
Ingush	Simult. Cvb	pre	reg	reg	reg	non-fin *cy=*	not all examples discussed; progressive force, changeable situation	no agreement with the head noun
Ingush	Pst Ptcp	pre	reg	reg	reg	non-fin *cy=*, lexic neg	limited TAM system	case agreement with the head noun
Ingush	Prs Ptcp	pre	reg	reg	reg	non-fin *cy=*	limited TAM system	case agreement with the head noun
Irish	Pst Ptcp *-tha/ -the*	post	impossˌ (?)	none	reg (rare)	NA	resultative meaning	no agreement with the head noun
Italian	Pst Ptcp *-t*	post	prep. *da*	none	reg	reg	resultative meaning	agreement with the head noun in number and gender
Japhug rGyalrong	S/A Ptcp *ku-*	pre/ int.h.	none	poss	reg	reg	restricted set of TAM markers	no agreement with the head noun
Japhug rGyalrong	P Ptcp *kɤ-*	pre/ int.h.	poss	none	reg	reg	restricted set of TAM markers	no agreement with the head noun
Japhug rGyalrong	Obl Ptcp *sɤ-*	pre	possˌ (S/ A or P)	possˌ (S /A or P)	reg	reg	restricted set of TAM markers, only imperfective prefixes, not perfective ones	no agreement with the head noun
Kalmyk	Res Ptcp *-ata*	pre	INS	none	restr	NA	no markers	no agreement with the head noun
Kalmyk	Hab Ptcp *-dəg*	pre	poss/ NOM	reg	reg	non-fin. *esə*	no markers	no agreement with the head noun
Kalmyk	Pfv Ptcp *-sən*	pre	poss/ NOM	reg	reg	non-fin. *esə*	progressive aspect common	no agreement with the head noun
Kalmyk	Fut Ptcp *-xə*	pre	poss/ NOM	reg	reg	non-fin. *esə*	progressive aspect common	no agreement with the head noun
Kamaiurá	Attr Nmz *-ama'e*	post	none	none	reg	nom	separate tense/aspect markers associated with nouns	no agreement with the head noun
Kamaiurá	Neg Attr Nmz *-uma'e*	post	none	none	reg	nom	separate tense/aspect markers associated with nouns	no agreement with the head noun
Kamaiurá	Pat. Nmz *-ipyt*	post	DAT	none	reg	nom	separate tense/aspect	no agreement with the head noun

							markers associated with nouns; some temporal/aspectual marking is obligatory	
Kamaiurá	Obj Nmz *-emi*	post	poss	none	reg	nom	separate tense/aspect markers associated with nouns	no agreement with the head noun
Kamaiurá	Nmz *-tap*	post	poss (intr.)	poss (tr.)	reg	nom	separate tense/aspect markers associated with nouns	no agreement with the head noun
Kamaiurá	Ag. Nmz *-tat*	post	none	poss	reg	nom	separate tense/aspect markers associated with nouns	no agreement with the head noun
Kambaata	Affirm. Rel (tonal)	pre	reg	reg	reg	spec	distinguish between imperfective, perfective, and progressive	similar to genitives; do not show agreement with the head noun
Kambaata	Neg Rel *-umb*	pre	reg	reg	reg	spec	all aspectual distinctions are neutralized; habitual interpretation most natural	agree with the head noun in case and gender like reg adjectives
Kayardild	Res Nmz *-thirri-n-*	pre/ post	poss/ ABL/ CONS/ ORIG	dep. on asp./ polar.	impossible	none	no other TAM	case agreement with the head; the two forms are based on a single nominalization marker *-n-*, but are treated as separate forms because of significant differences in syntactic properties
Kayardild	Conseq. Nmz *-n-ngarrba*	pre/ post	poss/ ABL/ CONS	CONS	CONS	none	no other TAM	the subject expression here refers to demoted agents in passive construction (with a Middle affix)
Ket	AN	pre	poss	reg/ incorp	reg	NA	subject — predominantly present/habitual, direct object — predominantly past	no agreement with the head noun
Kharia	Masdar (redupl.)	pre	GEN (poss)	reg	reg	NA	no TAM marking	NA
Kobon	Nmz *-eb*/*-ep*	pre	none	reg	reg	reg (?)	habitual (?)	no agreement with the head noun
Kokama-Kokamilla	Nmz *-n*	pre/ post	reg	none	reg	reg	tense expressed by clitics external to the verb form (like in independent clauses); nominalizer right after the root	no agreement with the head noun; juxtaposition also used for encoding possession
Kokama-Kokamilla	Nmz *-tara*	pre/ post	none	reg	reg	reg	tense expressed by clitics external to the verb form (like in independent clauses); nominalizer right after the root	no agreement with the head noun; juxtaposition also used for encoding possession
Kokama-Kokamilla	Nmz *-tupa*	pre/ post	reg	reg	reg	reg	tense expressed by clitics external to	no agreement with the head noun;

							the verb form (like in independent clauses); nominalizer right after the root	juxtaposition also used for encoding possession
Kolyma Yukaghir	Act Attr *-je*	pre	poss	spec. DOM	reg	reg *el*	future marker possible, but rare; no modal marking	no agreement with the head noun
Kolyma Yukaghir	AN *-l*	pre	poss	spec. DOM	reg	NA	future marker possible, but rare	no agreement with the head noun
Kolyma Yukaghir	Res Nominal *-ōl*	pre	poss	NA	reg	NA	resultative meaning; no other TAM marking	no agreement with the head noun
Kolyma Yukaghir	Pass Attr *-me*	pre	poss	spec. DOM	reg	reg *el*	future marker possible, but rare; no modal marking	no agreement with the head noun
Komi-Zyrian	Act Ptcp *-iš'*	pre/ (post)	none	reg	reg	spec	no additional TAM markers, mostly simultaneous to the main clause situation, present, or habitual	case and number agreement with the head noun if post, otherwise no
Komi-Zyrian	Pst Ptcp *-an/ -ana*	pre/ (post)	poss/ GEN/ NOM/ INS	reg	reg	spec	no additional TAM markers, mostly past meaning or participant's inherent property	case and number agreement with the head noun if post, otherwise no
Komi-Zyrian	Pfv Ptcp *-əm/ -əma*	pre/ (post)	poss/ GEN/ NOM/ INS	reg	reg	spec	no additional TAM markers, mostly perfective/past meaning	case and number agreement with the head noun if post, otherwise no
Komi-Zyrian	Neg Ptcp *-təm*	pre/ (post)	poss/ GEN/ NOM/ INS	reg	reg	spec	no additional TAM marking, tense meaning depending on the context	case and number agreement with the head noun if post, otherwise no
Koorete	Ipfv Sub *-e*	pre	reg	reg	reg	reg	no modal distinctions, tense and aspect distinctions same as in main clauses	invariable for person, unlike main clause forms
Koorete	Pfv Sub Subj *-a*	pre	reg	reg	reg	reg	no modal distinctions, tense and aspect distinctions same as in main clauses	invariable for person, unlike main clause forms
Koorete	Pefv Sub Non-Subj *-o*	pre	reg	reg	reg	reg	no modal distinctions, tense and aspect distinctions same as in main clauses	invariable for person, unlike main clause forms
Korean	Prs Rel Form *-nin*	pre	reg	reg	reg	reg (long-form neg)	refers to present, suffixed to processive verbs only; never occurs with other tense suffixes	no agreement with the head noun
Korean	Pst/Prs Rel Form *-n*	pre	reg	reg	reg	reg (long-form neg)	refers to past with processive verbs, present with descriptive verbs; can be preceded by the retrospective tense suffix or past tense suffix	no agreement with the head noun
Korean	Fut/Presump. Rel	pre	reg	reg	reg	reg (long-	refers to future/presumptive	no agreement with the head noun

	-l					form neg)	with any verbs; can be preceded by the past tense suffix (freely) or by the future tense suffix (rarely)	
Koryak	Fut Nmz *-jo-lqəl*	post/ pre	GEN/ reg (ERG)	none	reg	NA	future time reference; aspectual differences neutralized, mood not encoded	agreement with the head noun in case and number
Koryak	Non-Fut Nmz *-lq*	post/ pre	GEN/ reg (ERG)	none	reg	NA	present or past time reference; aspectual differences neutralized, mood not encoded	agreement with the head noun in case and number
Krongo	Conn *ŋ-*	post	poss/ spec. pronouns	reg	reg	NA	TAM possible, passive possible, periphrastic future	the Connector has different forms for masculine, feminine, neutral and plural (agreement in gender)
Lezgian	Ptcp *-j*	pre	reg	reg	reg	non-fin neg *te-*	restricted set of reg markers	no agreement with the head noun
Lithuanian	Prs Act Ptcp	free	none	reg	reg	reg (?)	present time reference; restricted tense paradigm	agreement with the head noun in case, number and gender
Lithuanian	Pret. Act Ptcp	free	none	reg	reg	reg (?)	past time reference; restricted tense paradigm	agreement with the head noun in case, number and gender
Lithuanian	Hab Pst Act Ptcp	free	none	reg	reg	reg (?)	habitual past meaning; restricted tense paradigm	agreement with the head noun in case, number and gender
Lithuanian	Fut Act Ptcp	free	none	reg	reg	reg (?)	future time reference; restricted tense paradigm	agreement with the head noun in case, number and gender
Lithuanian	Prs Pass Ptcp	free	GEN	none	reg	reg (?)	present time reference; restricted tense paradigm	agreement with the head noun in case, number and gender
Lithuanian	Pret. Pass Ptcp	free	GEN	none	reg	reg (?)	past time reference; restricted tense paradigm	agreement with the head noun in case, number and gender
Lithuanian	Fut Pass Ptcp	free	GEN	none	reg	reg (?)	future time reference; restricted tense paradigm	agreement with the head noun in case, number and gender
Luiseño	Nmz	post	poss	reg (?)	reg (?)	NA	NA	agreement with the modified noun in case and number
Maba	Ptcp *n-*	post	none	reg (?)	reg (?)	reg	at least some tense marking available (e.g. past); but not that expressed by clitics	no agreement with the head noun; participle commonly attaches a definite clitic
Ma'di	Obl Rel *-dʒɔ́*	post	poss	reg	reg	reg	no marking, temporal interpretation depending on the context	no agreement with the head noun

Ma'di	Obj Rel *-lɛ́*	post	poss	(reg)	reg	reg	no marking, temporal interpretation depending on the context	no agreement with the head noun
Ma'di	Subj Rel *-rɛ̄* (SG) & *-ɓá* (PL)	post	(poss)	reg	reg	reg	no marking, temporal interpretation depending on the context	no agreement with the head noun
Malayalam	Ptcp *-a*	pre	reg	reg	reg (?)	spec	debitive is the only available modal marker, use of future restricted to formal contexts	no agreement with the head noun
Malayalam	Neg Ptcp *-aatta*	pre	reg	reg	reg (?)	spec	no tense marking available, aspect can optionally be marked	no agreement with the head noun
Manange	Nmz *-pʌ*	pre	GEN (poss)	reg	reg	NA	secondary aspectual information expressed through verb serialization	no agreement with the head noun
Mapudungun	Act Ptcp *-lu*	post	none	reg	reg	non-fin/ subj *-no-/-nu-*	restricted set of reg markers	no person (or one person less than in finite verbs) is marked
Mapudungun	Pass Ptcp *-el*	post	poss	none	reg	non-fin/ subj *-no-/-nu-*	restricted set of reg markers	no person (or one person less than in finite verbs) is marked
Marathi	Ptcps (compl. system)	pre (non-restr.) post (restr.)	reg	reg	reg	spec for every ptcp	all TAM and polarity meanings can be expressed	agreement with the head noun in number and gender
Maricopa	Subj Rel Form *kw-*	int.h.	none	reg	reg	reg	irrealis marking available; other marking is apparently at least not very common	marking according to the role of the head noun in the matrix clause
Maricopa	Non-Subj Nmz	int.h.	unmarked	reg	reg	reg	irrealis (including future) marking seems unavailable; other marking is apparently at least no very common	marking according to the role of the head noun in the matrix clause
Martuthunira	Prs Rel *-nyila*	post	none	reg (?)	reg	NA	special present tense subordinate form; non-present relative clauses are finite	agreement in case with the head noun
Matsés	A Nmz *-quid*	free	none	reg	reg	spec	no TAM distinctions	case agreement with the head noun possible (if adjacent) or obligatory (if non-adjacent)
Matsés	P Nmz *-aid*	free	reg	reg	reg	spec	no TAM distinctions	case agreement with the head noun possible (if adjacent) or obligatory (if non-adjacent)
Matsés	Ins Nmz *-te*/	free	reg	reg	reg	spec	no TAM distinctions	case agreement with the head noun

	-tequid							possible (if adjacent) or obligatory (if non-adjacent)
Matsés	TAM-Coding Particip. Nmzs	free	reg	reg	reg	spec	diachronically segmentable nominalization affixes corresponding to different tense and evidentiality options	case agreement with the head noun possible (if adjacent) or obligatory (if non-adjacent)
Matsés	Neg Hab Subj Nmz *-esa*	free	none	reg	reg	spec	no additional tense marking	case agreement with the head noun possible (if adjacent) or obligatory (if non-adjacent)
Matsés	Neg Hab P/INS Nmz *-temaid*	free	reg	reg	reg	spec	no additional tense marking	case agreement with the head noun possible (if adjacent) or obligatory (if non-adjacent)
Matsés	Neg Pfv P/INS Nmz *-acmaid*	free	reg	reg	reg	spec	no additional tense marking	case agreement with the head noun possible (if adjacent) or obligatory (if non-adjacent)
Meadow Mari	Act Ptcp *-še*	pre/ (post)	none	reg	reg	spec	no additional TAM markers, tense meaning depending on the context	case and number agreement with the head noun if post, otherwise no
Meadow Mari	Fut Ptcp *-šaš*	pre/ (post)	poss/ GEN/ NOM/ INS	reg	reg	spec	no additional TAM markers, situation following the situation in the main clause, future, habitual, or deontic modal	case and number agreement with the head noun if post, otherwise no
Meadow Mari	Pass Ptcp *-me*	pre/ (post)	poss/ GEN/ NOM/ INS	reg	reg	spec	no additional TAM markers, tense meaning depending on the context	case and number agreement with the head noun if post, otherwise no
Meadow Mari	Neg ptcp *-dəme*	pre/ (post)	poss/ GEN/ NOM/ INS	reg	reg	spec	no additional TAM markers, tense meaning depending on the context	case and number agreement with the head noun if post, otherwise no
Mẽbengokre	Nmz	int.h./ post adj	erg. align.	erg. align.	reg	reg	restrictions on tense expression (left peripheral particles impossible)	no special marking on the head noun
Middle Egyptian	Subj Ptcp	post	none	reg (?)	reg (?)	reg	present/past distinction expressed through the verb root changes	agreement in number and gender with the modified noun
Middle Egyptian	Non-Subj Ptcp	post	prep. *jn*	reg (?)	reg (?)	reg	present/past distinction expressed through the verb root changes	agreement in number and gender with the modified noun
Mochica	Stat. Ptcp *-d-o*	pre	GEN (poss)	none	reg	NA	accomplished event	no agreement with the head noun
Modern Greek	Pst Pass Ptcp	post	prep. *apo*	none	reg	verb. adj. *a-*	perfective meaning	agreement with the head noun in case,

	-ménos					*V-tos*		number and gender
Modern Standard Arabic	Act Ptcp	post	none	reg	reg	adject *ghayr*	not marked for tense, temporal meaning based on the context	agreement with the modified noun in case, definiteness, gender, and number (agrees in gender and number with the subject when used with resumptive pronouns)
Modern Standard Arabic	Pass Ptcp	post	reg	none	reg	adject *ghayr*	not marked for tense, temporal meaning based on the context	agreement with the modified noun in case, definiteness, gender, and number (agrees in gender and number with the subject when used with resumptive pronouns)
Motuna	Ptcp -(*wa*)*h*	post/ pre	reg	reg (oblig. in A relat.)	reg	NA	no TAM marking possible	no agreement with the head noun; all RCs are restrictive
Muna	Act Ptcp (circ.)	post	none	reg	reg	non-fin neg *pata*	future marker *so* available	no agreement with the head noun
Muna	Loc Nmz (*ka-…-ha*)	post	poss	reg, non-pron.	reg	nom neg *suano*	future marker so is not available	no agreement with the head noun
Muna	Nmz *ka-*	post	poss/ prep. *ne*	none/ IO as a poss	reg	nom neg *suano*	future marker *so* is not available	no agreement with the head noun
Muna	Pass Ptcp *ni-*	post	poss	none	reg	non-fin neg *pata*	future marker *so* available	no agreement with the head noun
Nanai	Prs Ptcp	pre	poss	reg	reg	NA	reduced tense and modality system, aspect available	no agreement with the head noun
Nanai	Pst Ptcp	pre	poss	reg	reg	NA	reduced tense and modality system, aspect available	no agreement with the head noun
Nanga	Pfv Ptcp *-sè*	int.h.	reg	reg	reg	reg	corresponds to all the perfective forms possible in main clauses	no nominal agreement with the head NP, no subject agreement
Nanga	ImPfv Ptcp *-mì*	int.h.	reg	reg	reg	reg	has a broader range of uses than its main clause counterpart	no nominal agreement with the head NP, no subject agreement

Nevome	Nmz *-cama*	post	none	NA	reg	reg	habitual meaning or general property	juxtaposed to the modified noun
Nevome	Fut Res Nmz *-cugai*	post	poss	none	reg	reg	future time reference ("future resultative", Shaul 1986: 46)	juxtaposed to the modified noun
Nevome	Prs Loc Nmz *-cami*	post	NA	NA	reg	reg	present reference	juxtaposed to the modified noun
Nevome	Hab Loc Nmz *-carhami*	post	NA	NA	reg	reg	habitual meaning	juxtaposed to the modified noun
Nevome	Pst Loc Nmz *-parhami*	post	NA	NA	reg	reg	past reference	juxtaposed to the modified noun
Nevome	Fut Loc Nmz *-aicami*	post	NA	NA	reg	reg	future reference	juxtaposed to the modified noun
Nias	Rel Pass *ni-*	post	poss/ mutated	reg (for IO)	reg (?)	spec constr	imperfective; perfective clitic *ma* is prohibited	no agreement with the head noun
Nivkh	Ptcp	pre	reg	reg	reg	reg	any TAM possible except for the indicative marker	no agreement with the head noun, but a dependent-head complex
North Saami	Ag. Pass Ptcp *-n*	pre	GEN	none	rare	spec	mostly preceding the situation in the main clause	no agreement with the head noun
North Saami	Prs Act Ptcp *-i/ (jead)dji*	pre	none	reg	rare	spec	simultaneous or habitual meaning	no agreement with the head noun
North Saami	Pst Act Ptcp *-n*	pre	none	reg	rare	spec	preceding the situation in the main clause	no agreement with the head noun
North Saami	Neg Ptcp *-keahtes*	pre	none	reg	rare	spec	temporal meaning depending on the context	no agreement with the head noun
Northern Khanty	Non-Pst Ptcp *-ti*	pre	LOC/ poss	reg	reg	spec	reduced tense system (no future)	no agreement with the head noun
Northern Khanty	Pst Ptcp *-m*	pre	LOC/ poss	reg	reg	spec	reduced tense system (no future)	no agreement with the head noun
Northern Khanty	Neg Ptcp *-li*	pre	reg (?)	none	reg	spec	no tense distinctions	no agreement with the head noun
Panare	Pst Ptcp *-sa'*	post (?)	DAT	none	reg (?)	NA	past tense meaning	NA
Panare	Ag. Ptcp *-jpo*	post (?)	none	reg (?)	reg (?)	NA	NA	NA
Pitta Pitta	*-ka* (diachr. Pst)	post	reg	reg	reg	NA	only examples referring to the past are available	agreement in case with the head noun
Qiang	Ag. Nmz *-m*	pre	reg	reg	reg	NA	NA	only animate head nouns; no agreement with the head noun
Qiang	Insl Nmz *-s*	pre	reg	reg	reg	NA	NA	both animate and inanimate heads; no agreement with the head noun
Rif Berber	Act Ptcp	post	none	reg (?)	reg (?)	reg (?)	can be formed from all temporal/aspectual bases; no additional TAM marking	no gender and number distinctions
Russian	Prs Act Ptcp *-ušć/-ašč*	free	none	reg	reg	reg	no other TAM markers, future participles	agreement with the head noun in case, number and gender

							marginal and non-standard	
Russian	Pst Act Ptcp *-vš*	free	none	reg	reg	reg	no other TAM markers, future participles marginal and non-standard	agreement with the head noun in case, number and gender
Russian	Prs Pass Ptcp *-m*	free	INS	none	reg	reg	no other TAM markers	agreement with the head noun in case, number and gender
Russian	Pst Pass Ptcp *-n*/*-t*	free	INS	none	reg	reg	no other TAM markers	agreement with the head noun in case, number and gender
Sakha	Pst Ptcp *-bït*	pre	poss	reg	reg	spec	NA	possessive marking denoting the subject is on the head noun
Sakha	Neg Pst Ptcp *-bataχ*	pre	poss	reg	reg	spec	NA	possessive marking denoting the subject is on the head noun
Sakha	Prs Ptcp *-ar*/*-ïr*	pre	poss	reg	reg	spec	NA	possessive marking denoting the subject is on the head noun
Sakha	Neg Prs Ptcp *-bat*	pre	poss	reg	reg	spec	NA	possessive marking denoting the subject is on the head noun
Sakha	Fut Ptcp *-ïaχ*	pre	poss	reg	reg	spec	NA	possessive marking denoting the subject is on the head noun
Sakha	Neg Fut Ptcp *-(ï)mïaχ*	pre	poss	reg	reg	spec	NA	possessive marking denoting the subject is on the head noun
Santiam Kalapuya	Inf *gi-*	post (?)	none	reg (?)	reg (?)	NA	no TAM marking available; only relative clauses describing actions, not states	the prefix does not co-occur with subject prefixes; no agreement with the head noun observed
Savosavo	Rel *-tu*	pre	GEN (poss)	reg	reg	NA	almost no TAM marking possible	no agreement with the head noun
Seri	Subj Nmz	int.h.	none	reg	reg	spec nom (*i-*)	no TAM marking available; meaning depending on the context	no special marking on the head noun
Seri	Obj Nmz	int.h.	poss	reg (for IO)	reg	spec nom (*Ø-*)	no TAM marking available; meaning depending on the context	no special marking on the head noun
Seri	Obl Nmz	int.h.	poss	reg	reg	impos s (?)	no TAM marking available; meaning depending on the context	no special marking on the head noun
Sheko	Rel Verb Form *-ə̀b* (*-ə̀be* for Fem Sg)	pre/ post	reg	reg	reg	reg	hardly any aspectual restrictions; realis only; no stance marking	marker distribution: *-ə̀b* for masculine and any plural, *-ə̀be* for feminine; no case agreement with the head
Tamil	Ptcp *-a*	pre	reg	reg	reg	neg suff. *-aat* + ptcp *-a*	NA	no agreement with the head noun
Tamil	Fut Ptcp *-um*	pre	reg	reg	reg	neg suff. *-aat* + ptcp *-a*	NA	no agreement with the head noun
Tanti Dargwa	Pret.	pre	reg	reg	reg	reg	slightly limited	no person inflection;

	Ptcp						system	no agreement with the head noun
Tanti Dargwa	Prs Ptcp	pre	reg	reg	reg	reg	slightly limited system	no person inflection; no agreement with the head noun
Tanti Dargwa	Pot. Ptcp *-an*	pre	reg	reg	reg	reg	slightly limited system	no person inflection; no agreement with the head noun
Tariana	Fut Ptcp *ka-V-pena*	post	none	reg (?)	reg	spec *ma-V-kade-*	relative tense, following the situation in the main clause	no gender and number distinctions
Tariana	Nmz *-mi*	free (incl. int.h.)	reg	reg (?)	reg	NA	preceding the situation in the main clause	no gender and number distinctions; takes classifiers
Tariana	Nmz *-nipe*	free (incl. int.h.)	reg	none	reg	NA	simultaneous with the situation in the main clause	no gender and number distinctions; does not take classifiers
Tariana	Pst Ptcp *ka-V-kari* (MASC)/ *ka-V-karu* (FEM)/ *ka-V-kani* (PL)	post	none	reg (?)	reg	spec *ma-V-kade-*	relative tense, preceding the situation in the main clause	distinguishes two genders and plural number
Tariana	Ptcp *ka-*	post	none	reg (?)	reg	spec *ma-V-kade-*	relative tense, simultaneous to the situation in the main clause	no gender and number distinctions
Tarma Quechua	Ag. Nmz *-q*	pre/ post	none	reg	reg	NA	ongoing/non-accomplished/past events	no agreement with the head noun
Tarma Quechua	Fut Nmz *-na*	pre/ post	reg	reg	reg	NA	non-accomplished events	no agreement with the head noun
Tarma Quechua	Rel Nmz *-nqa*	pre/ post	reg	reg	reg	NA	ongoing/accomplished events	no agreement with the head noun
Tarma Quechua	Stat. Nmz *-sha*	pre/ post	ABL	none	reg	NA	accomplished/state-like; does not co-occur with aspect markers; evidential marking possible	no agreement with the head noun
Telugu	Pst Ptcp *-ina*	pre	reg	reg	reg	spec	TA meanings most common in main clauses are possible in participial RCs	no agreement with the head noun
Telugu	Fut-Hab Ptcp *-ee*	pre	reg	reg	reg	spec	TA meanings most common in main clauses are possible in participial RCs	no agreement with the head noun
Telugu	Dur. Ptcp *-tunna*	pre	reg	reg	reg	spec	TA meanings most common in main clauses are possible in participial RCs	no agreement with the head noun
Telugu	Neg Ptcp *-ani*	pre	reg	reg	reg	spec	exact temporal meaning understood from the context	no agreement with the head noun
Tsafiki	Ipfv Ptcp *-min*	pre	reg (?)	reg (?)	NA	*-tu-*	NA	NA
Tsafiki	Pfv Ptcp *-ka*	pre	reg (?)	reg (?)	NA	NA	NA	NA
Tsafiki	Nmz *-nun*	pre	reg (?)	reg (?)	NA	NA	NA	NA

Tundra Nenets	Ipfv Ptcp *-n(ʹa)/ -t(ʹa)*	pre	poss	reg	reg	spec	simultaneous with the situation in the main clause	optional agreement with the head noun in number and, rarely, case (and person/number expressing the dependent subject)
Tundra Nenets	Pfv Ptcp *-miə/-me*	pre	poss	reg	reg	spec	preceding the situation in the main clause	optional agreement with the head noun in number and, rarely, case (and person/number expressing the dependent subject)
Tundra Nenets	Fut Ptcp *-mənta*	pre	poss	reg	reg	spec	future or modal meanings	optional agreement with the head noun in number and, rarely, case (and person/number expressing the dependent subject)
Tundra Nenets	Neg Ptcp *-mədawe (y(ə))*	pre	poss	reg	reg	spec	preceding the situation in the main clause	optional agreement with the head noun in number and, rarely, case (and person/number expressing the dependent subject)
Tundra Nenets	Pfv AN	pre	poss	reg	reg	spec	relative past (preceding situation)	case and number agreement with the head noun is optional and extremely rare
Tundra Nenets	Ipfv AN	pre	poss	reg	reg	spec	relative present (simultaneous situation)	case and number agreement with the head noun is optional and extremely rare
Tundra Nenets	Mod. Cvb	pre	poss	reg	reg	spec	relative present (simultaneous situation)	case and number agreement with the head noun is optional and extremely rare
Tümpisa Shoshone	Prs Ptcp *-tün*	free	none	reg (?)	reg	NA	present time reference or simultaneous with the situation in the main clause	agreement in case with the modified noun
Tümpisa Shoshone	Inf *-nna*	free	poss/ refl. poss	reg (?)	reg	NA	present time reference or simultaneous with the situation in the main clause	agreement in case with the modified noun
Tümpisa Shoshone	Pst Ptcp *-ppüh*	free	poss/ refl. poss	reg (?)	reg	NA	past time reference or perfective meaning	agreement in case with the modified noun
Urarina	Ag. Nmz *-era*	pre	none	reg	reg	NA	very little TAM marking allowed	no agreement with the modified noun
Urarina	Abs. Nmz *-i*	pre	NA	none	reg	NA	very little TAM marking allowed	no agreement with the modified noun
Wambaya	Ag. Nmz	post/ adj	none	reg	reg (?)	NA	NA	agreement with the modified noun in noun class and case
Wan	Attr Nmz *-ŋ*	pre	inal. poss/ al. poss	inal. poss/ al. poss	inal. poss/ extern.	NA	no TAM possible	no nominal agreement; definitely GNMCC; one argument is always realized as an inalianable poss (priority goes to P),

								the second — as an alienable poss (if A), or externally (adverbials)
Wappo	Dep	int.h./ post adj	unmark. (ACC)	reg	reg	neg dep *-lah*	apparently full set of TAM meanings in the dependent paradigm	the clause receives the marking representing the role of the head noun in the main clause
Warihio	Loc Nmz *-ači*	post	reg/ non-subj/ poss	reg	reg	NA	some aspect marking available	no agreement with the modified noun (?)
Warihio	P/T/ R/INS Nmz *-a*	post	reg/ non-subj/ poss	reg	reg	NA	some aspect marking available	no agreement with the modified noun (?)
Warihio	Subj Nmz *-me*	post	none	reg	reg	NA	special limited set of aspect markers	no agreement with the modified noun (?)
West Greenlandic	Act Ptcp *-soq*	post	none	none	reg (?)	NA	some TAM affixes possible, but less than in independent sentences	agreement with the modified noun in case and number
West Greenlandic	Pass Ptcp *-saq*	post	poss/ ABL	none	reg (?)	NA	some TAM affixes possible, but less than in independent sentences	agreement with the modified noun in case and number
Wikchamni	Neutr. Ag. {*-aǰ/*} or {*-iǰ/*}	post (?)	none	NA	reg (?)	NA	neutral, usually non-resultative	agreement in case with the modified noun
Wikchamni	Pass Verb. Noun {*-ʔaṅa/*} or {*-ʔ...aṅa/*}	post (?)	GEN	none	reg (?)	NA	NA	agreement in case with the modified noun
Wolio	Pass Ptcp *i-*	post	reg (?)	none	reg (?)	NA	no concord with the subject, probably no tense clitics	no agreement with the modified noun; ligature not used, contrarily to finite relative clauses
Wolio	Act Ptcp *mo-*	post	none	NA	reg (?)	NA	no concord with the subject, probably no tense clitics	no agreement with the modified noun; ligature not used, contrarily to finite relative clauses
Yimas	Non-Fin. *-ru*	post	none	reg	reg	spec	no TAM marking possible; characteristic traits of the modified nouns	one of the set of suffixes depending on the noun class of the head
Yimas	Neg Non-Fin. *-kakan*	post	reg	reg	reg	spec	no TAM marking possible; characteristic traits of the modified nouns	one of the set of suffixes depending on the noun class of the head

Appendix 3. References on the languages outside the core sample

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